

2006
A N

I N Q U I R Y



INTO THE

P R E S E N T S T A T E

O F

M E D I C A L S U R G E R Y ;

I N C L U D I N G

The ANALOGY betwixt EXTERNAL and INTERNAL
DISORDERS; and the INSEPARABILITY of these
BRANCHES of the same PROFESSION.

Rationalem quidem puto medicinam esse debere, instrui vero ab
evidentibus causis, obscuris omnibus, non a cogitatione artificis,
sed ab ipsa arte rejectis. C E L S U S .

V O L . I .

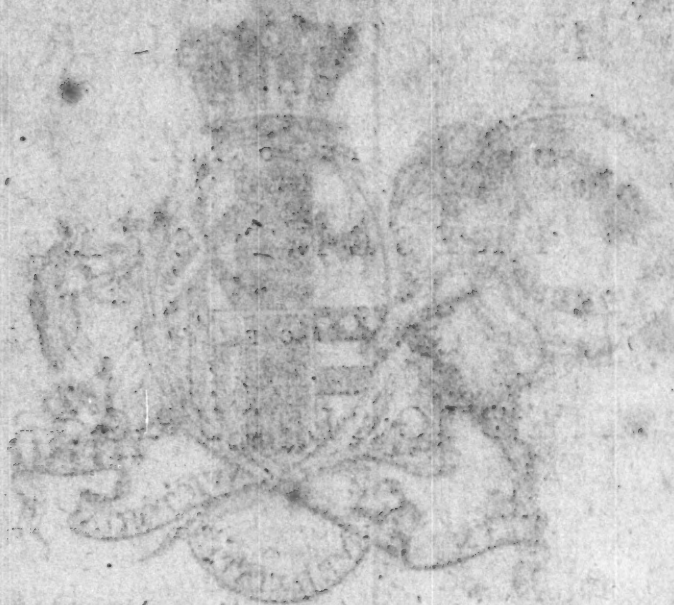
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L O N D O N

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MDCCLXXXIII.

1677





To the Right Honourable
FRANCIS Earl of **HUNTINGDON**,
Baron Hastings, Hungerford, Newmark, Peverel,
Botreaux, Molins, Moëls, and de Homet.

MY LORD,

THIRTY-SIX years have now
elapsed, since I was first ho-
noured with the patronage and
friendship of your noble family;
and now, like the navigator, who,

A 2 after

after failing in quest of knowledge, returns to communicate his discoveries, I, from gratitude, dedicate to your lordship the result of my observation and experience. In the following Inquiry into the Present State of Medical Surgery, my aim is, to recommend this branch of the profession; which, notwithstanding its high importance, appears not to have been duly attended to by modern writers. The object of it is to assist nature without mutilating the patient, and to lessen the necessity of manual operations.

Should my labours, in their result, contribute to answer this purpose, I know they will meet your lordship's

ship's wishes; than whom, no person is more susceptible of the feelings of humanity. You will read with pleasure whatever tends to avert an increase of misery from those who are so unfortunate as to require chirurgical assistance.

This introduction, your lordship knows, is intended to remove the impediments to medico-chirurgical knowledge, by recommending the study and practice of medicine in the manner of the Greeks. I am happy in being supported in opinion by your lordship; whose mature judgment and literary acquirements are universally known: and I have ventured to make my sentiments

public, in hopes that others may entertain the same favourable ideas of them your lordship was pleased to express when you honoured my manuscript with a perusal. It is intended for the service of mankind, and will not require any other recommendation to your lordship.

I have the honour to be,

My Lord,

Your Lordship's

Most obedient, and
most humble servant,

Abby de la Zouch,
February 1, 1783.

THOMAS KIRKLAND.

P R E F A C E.

THE following introduction, which refers to the subsequent Inquiry, &c. is meant to encourage the study of that branch of medicine, which cures external diseases chiefly by medicaments, and to prove the inseparability of Physic and what is now called Surgery. Nor is it possible to have a clearer instance of the necessity of a work of this kind, than sensible writers in these days advising chronic ulcers of the legs not to be admitted into the hospitals; because they seldom obtain a radical cure, and are injurious to the charity. Among the other tracts are the medico-chirurgical works I have already offered to the public, now formed into regular essays, and improved by the addition of such knowledge as I have since derived from mature reflection and experience.

In

In examining the medical part of surgery, I have endeavoured to point out what doctrines ought to be rejected, and what retained ; where improvements are wanted, and, as far as practice hath enabled me, in what manner they may properly be made. And knowing that good practice springs only from the application of reason to experience, I have in general argued from indisputable facts, and I hope without losing sight of the direct object. Wherever I decry theory, I mean that only which is hypothetical, and destitute of proper support.

CON-

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N O T E.

Having discovered that the large arteries have neither systole nor diastole (see Addenda to the Treatise on Inflammation) the following alterations appear to be necessary.

PAGE 168, line 11, *dele* the word action. P. 261, l. 15, *for* systole *read* motion. P. 262, l. 10, They are sometimes lengthened by the force of the blood expelled from the heart then, and for this office, &c. P. 283, l. 5, incapable of doing their office. P. 291, l. 21, *dele* and arteries P. 369, l. 9, *dele* by encreasing the action of the vessels.

E R R A T A.

PAGE 20, line 2, *read* but if notwithstanding suppuration comes on, we must then forward it. P. 37, l. 2, *for* olite *read* polite. P. 66, l. 11, *for* letros *read* letroi. P. 67, l. 17, *after* of *add* the. P. 99, l. 4, *for* gaol *read* goal. P. 138, l. 13, *for* crofs *read* such. P. 226, l. 4, *for* fever *read* fevers. P. 227, l. 10, cold water with a toast. P. 313, l. 18, *for* sincet he *read* since the. P. 379, l. 1 *for* syrups *read* syrup. P. 384, l. 12, *for* Anginora *read* Anginosa. P. 402, l. 7, *for* nostrils *read* tonsils. P. 419, l. 16, *dele* brains. P. 473, l. 4, *dele* is. P. 473, l. 16, *for* was *read* is. P. 474, l. 1, *for* tricheafis *read* tricheafis. P. 481, l. 6, *for* Ophthalmia *read* ophthalmia. P. 485, l. 20, *for* anastomifing *read* anastomosing.

INTRODUCTION:

BEING

An ESSAY on the INSEPARABILITY
of the Different BRANCHES of MEDICINE.

*Id ante omnia scire convenit, quod omnes medicinae partes, ita
connexae sunt, ut ex toto separari non possint.* CELSUS.

WHOEVER is acquainted with the general preface to *Celsus de Medicina*, must know that the above axiom, taken from the beginning of his fifth book, was the result of strict inquiry, mature deliberation, and sound judgment. But though universally allowed to be true, it has been perverted, and the science of medicine retarded in its progress; for notwithstanding it is supposed, that all its branches are now cultivated in greater
B per-

Medicine
has been
retarded
in its
progress.

INTRODUCTION.

perfection, than in former times, it is possible we may only be propagating error in new forms. If mutability is a sign of imperfection, as Pliny asserts, medicine was never more imperfect than in these days, owing to the cause assigned, and to the speculative theories men of fertile invention daily make, with the same facility that a spider spins a thread. The *lohoch. e myrrha* of Fuller, is a most powerful remedy in nervous coughs; but upon the mechanical doctrine taking place, nothing would do in disorders of the lungs but removing them with wedge and hammer, and it was thus driven out of use. In these days, the nauseating doctrine* of spasm in fevers, probably squeezes practice into an aukward form, by torturing the patient to remove effects which never exist. The preparations of lead were much

* The horrid practice of keeping up a nausea for several hours, to take off spasms of the skin!

disused

disused till Mr. Goulard rescued them from neglect, and supported their external application against the false analogy of speculative men. The same may be said of a thousand other remedies ; so that neglecting valuable medical compositions, and preferring those suited to the theory of the times, seems, in too many instances, to constitute what is deemed improvement in medicine. Nor can there be a greater proof of ignorance, in the treatment of diseases, than altering practice, as the weathercock of theory directs ; it being a convincing argument, that we know no certain method of relieving or curing them, and that we are guided by medical caprice.

Indeed surgery, properly so called, is almost exempt from these strictures ; for the *principal part* being accomplished by the hand, its effects are evident, and it is practised upon more certain grounds than the cure of inward distempers, in which

Except
that part
called sur-
gery.

• I N T R O D U C T I O N.

it may often be doubted, whether the recovery is owing to remedies, or the constitution: accordingly, manual operation, and a knowledge of some complaints requiring this treatment, have been so much improved in England, within this last half century, that almost every one who undertakes the cure of external disorders, becomes an expert operator.

Nevertheless, though this branch of medicine has received such great advantages, an inquiry into the nature and cure of those external diseases, relieved by medicaments, has been too much neglected: for as soon as Mr. Samuel Sharp's surgical treatise appeared, operations in surgery, as they have been improperly called, became the chief object of attention. Students were soon taught to believe, that the nature and cure of inflammation, abscesses, wounds, ulcers, fractures, luxations, &c. were settled and agreed on, by

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by all the surgeons of eminence in Europe*; and hence those who thought not for themselves, saw no necessity of examining, what had been written upon these subjects. Perhaps also the parade and eclat, that commonly attend a successful operation, might be an inducement to pursue that part of the business, by which fame was most readily acquired; especially in those who had not been properly educated in the practice of medical surgery. Formerly the knowledge of this art descended from master to pupil, and the Tyro was regularly taught the methods of cure which had been approved, and handed down from one surgeon to another. But, unfortunately for the science, some years ago, most of those who commenced surgeons in England had been bred Apothecaries; and were never instructed in the art of curing external diseases.

Even the cure of external diseases requiring the use of medicaments has been neglected.

* Mr. Sharp's Crit. Inq. Preface.

B 3

eases,

eases, until a year's attendance in an hospital, and being able to perform operations, gave them credit for being proficient in a branch of knowledge they had not a sufficient opportunity of attaining: it being impossible to learn medical surgery without a series of years experience. Accordingly, it must have been observed, that many men with this education, who have shone as operators, have not been able to distinguish themselves, in preventing the necessity of this treatment, or in the cure of those diseases, where operations cannot with any sort of propriety be introduced.

The dressing of
sores in
what manner
to be
learned.

The dressing and cure of sores is not to be learned by merely looking on; and as nothing is worse in its consequences than bad habits, the topical application of remedies ought only to be studied from exact and attentive practice. Dressings must be applied, with the proper intention

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tion of assisting nature; and the hand, by use, will acquire dexterity in carrying into execution the dictates of an enlightened mind. A man may see bandage used daily, and hear of its advantages, without being able to employ it otherwise than to do injury, until use and observation make him familiar in the application. So much depends upon the manner of using external remedies, that it is a notorious fact, that those surgeons who have been properly educated from their youth, will accomplish a cure with the same kind of dressings which prove useless, if not pernicious, in the hands of those who were never taught the right manner of applying them. A mechanical exactness is required; accordingly, those who have a mechanical genius make the best dressers, because it leads them to apply the whole of their dressings accurately. It is to be remarked, that though recent ulcers, arising

ing from common accidents, such as wounds, bruises, &c. will, by the force of nature, often heal, in whatever manner they are dressed; yet proper treatment will greatly facilitate their cure. Therefore, unless nature is properly consulted and assisted in the cure of chronical ulcers, not only with suitable dressings, but by attending to every point of the sore, and to the parts about it, with precision, the surgeon will give frequent proofs, that he has learned his business only in part. Nor indeed is it possible for him to form any true judgment of the appearance of an ulcer, without knowing the effects that different modes of dressing produce.

Why not
to be
learned in
hospitals.

Now this kind of instruction is not to be expected in hospitals in general; though great advantages, from seeing a variety of cases, and operations, may be acquired by attending them. The number of patients dressed in a very short space of time, will
not

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not admit of great nicety ; the pupil has not time to examine them with attention and accuracy ; the hasty and general manner of dressing will fall very short of proper instruction ; and if he has not been previously well grounded in judicious private practice, he will adopt a bad method of proceeding * : Of course proving deficient in the cure of those sores where art is required, he turns his thoughts to the use of the knife, where he is more likely to be successful. Indeed, I believe a deficiency in Medico-chirurgical knowledge, has often arisen from want of a proper initiation into the art ; and I am persuaded, this has been the source of more mischief than is generally imagined ; bad practice having been transmitted from master to

* Those who have not had proper opportunities of receiving instruction, during the early part of their education, should not omit seeing the private practice of the hospital surgeon, under whom they enter, in order to learn a proper method of dressing.

pupil,

pupil, by those who had not been taught a judicious method, in the application of topical remedies. Otherwise I am, certain the cure of chronical ulcers would not so often have been a stumbling block: the old surgeons knew how to cure them, and I have every reason to believe, they will for the most part be readily and safely healed, when scientific principles are pursued.

As the study of operations has been cultivated, the medical part of surgery has degenerated.

But whatever were the motives, a fondness for the knife prevailed, and even, in these days, Mr. Pott tells us *, that operations are the great and almost only object, which those who come to the hospitals for improvement have in view: and I am sorry to observe the same views too often continue, when they afterwards reside in the country. Chirurgical writers also have chiefly been engaged in this

* Preface to Treat. on Fistul. Lachrym.

pursuit*. Instead of following the plan of Parey, Hildanus, Aquapendens, Wiseman, Turner, &c. who attended to the improvement of medical surgery, the most eminent surgeons in these days confine their inquiries to those complaints, where the principal part is accomplished by the hand. At the same time, so little attention has been paid to the cure of ulcers, which make by much the greatest part of medical surgery, that Mr. Else, knowing the insufficiency of modern practice, lately wrote a paper† to recal surgeons to the use of bandage in the cure of sore legs!!! fairly evincing, that as the art gained knowledge in one part, it has degenerated in another. Nor can there be a stronger proof of this degeneracy, or greater marks of quackery, than the disposition to believe, that these complaints may

* Mr. Bilguer on amputation in particular must be excepted.

† Med. Inq. vol. iv.

be cured by specifics ; and that we have a universal remedy in the vinegar of lead. The principles incontestably right, laid down by Parey * from the Greeks, for the topical management of compound fractures, and formerly followed by the best surgeons in Europe, are now generally neglected, or not understood ; and our refinements too often extinguish the life of the patient by a deluge of matter †.

The consequence of suffering the medical practice of surgery to degenerate, and the advantages to the surgeon of attending to this branch of the profession.

Surely suffering the medical practice of surgery to degenerate, is disgraceful to the science, and highly injurious to society. For he who omits to inform himself in the methods of preventing operations, will perform more than are necessary ; and many a limb which might, I am persuaded, have been saved, has been taken off, because the operator had never attended properly to the art of healing. Every

* Lib. xv, cap. 24 & 25.
Comp. Fractures,

† See Essay on
blockhead

INTRODUCTION.

13

blockhead can *amputate a leg*; but how much more praise-worthy is he whose skill enables him to effect a cure, and preserve the limb? The discerning part of mankind will esteem him; he will ever be distinguished from the herd, who are incapable of giving nature proper assistance under difficulties; and his own reflections will fully reward him for the pains he may have taken, in acquiring that knowledge his profession requires. Besides, if he is well skilled in medical surgery, the event of necessary operations (when he is obliged to have recourse to them) will be more successful, from a judicious choice of proper applications. For supposing a surgeon to remove a scirrhus with dexterity from the breast, and to dress the succeeding ulcer with common digestives; by irritating, he may bring on a return of the disease, which perhaps might not have happened, if proper sedatives

tives had been all along employed, and care taken to keep the parts about the cicatrix in a state incapable of being easily fretted *. Or suppose the operation of trepanning to be well performed, yet if the surgeon does not know what kind of medicaments should be used, to subdue *fungi* of the brain, and when, and in what manner, to suppress evacuations from this substance; the patient will sometimes fall a victim to the ignorance of his assistant †. In short, will not operations, however well performed, often prove abortive, if the surgeon has not made medical surgery the principal part of his study? And yet I am fearful, too many who have confined their inquiries to operations chiefly, have adopted the opinion, that nature being the curer of wounds, no external application whatever assists, farther than by keeping the parts soft, and defending them

* See Cancer.

† See Wounds of the Head.

from

from the air; and that dry lint, and any mild ointment, are fully sufficient for every purpose!

It however must be confessed, that manual operation often eradicates diseases, which are incapable of being removed by other remedies; and it is certainly a most useful, and necessary branch of the profession: they have done well, who have devised the most proper method of performing it; and an operator, with knowledge and steadiness, is worthy of esteem. Nevertheless, though some men have raised themselves to the head of the art, by their practice and writings in this branch of medicine, yet, I think with M. de la Peyronie *, that those surgeons who rest their merit on the ability of performing operations *alone*, at once lessen themselves, and depreciate their profession. By this course of practice, they effectually

Operations useful, and the method of performing them readily acquired.

* Preface to vol. i. Memoirs Surg. Paris.

prove

prove that their attainments in the art have been confined to a very narrow compass; because, after all, the use of the knife requires but a small degree of mechanical dexterity. Operations are very readily undertaken, and as readily performed, by Tyros, after a little practice upon dead bodies; and illiterate men, totally unconscious of any one law of nature, or of any one principle in the organization of an animal frame, are equally dexterous and successful in their operations with the knife, upon brutes. In this representation, we hope to be understood merely as censuring hackneyed modes of practice; being sufficiently aware, that diseases requiring operations out of the common way, frequently present themselves, where original design is required, and which can only be well conceived and executed by men of genius and reflection.

Society

Society would have received greater advantages from the art of surgery, if equal attention had been paid to the nature of inflammation, ulcers, and abscesses. For however these may appear to be settled, yet there is not any branch of medicine requires more correction; much less having been done since the time of Galen, than is generally imagined; erroneous principles, and bad practice, having been handed down to us, from his days, by one writer to another, and received as established rules, without being strictly examined.

Greater advantages would have accrued to society, if more attention had been paid to medical surgery.

Even Wiseman, who was perfectly capable of writing an original book, copied a farrago of medicines from Galen, or his followers, and adopted many errors, seemingly for no other reason than their having passed through the hands of the Greek, Arabic, and Latin writers unmo-
lest. Because, whenever he had resolu-

But erroneous opinions have been copied from one writer to another.

tion enough to shake off the fetters of authority, his own good sense, in many instances, flatly contradicts the very rules he had approved and laid down. And truly most of the books, which treat upon medical surgery in general, are collections of old materials, often hashed up to sanctify an heterogeneous practice, inadequate to the purpose for which it was intended.

And opinions, and rules recommended, which ought to have been rejected.

The baron Van Swieten, indeed, has collected together almost all that had been written upon the subject; but, not being a practical surgeon, he has received and recommended, amidst true medical science, many opinions and rules which ought to have been rejected. Nor has Mr. Samuel Sharpe, on the art of healing, in the introduction to his chirurgical treatise, shewn skill equal to his manner of describing operations. In the one instance he ransacked the works of every writer of eminence
for

for information, and exhibited a clear, learned, and ingenious view of the subject in question: in the other, as will hereafter appear, he left convincing proofs that his inquiries were not equally assiduous, and that his attention was principally taken up with the use of the knife. Had his work been stored with true medico-chirurgical knowledge, he would have taught us in what manner obstinate ulcers, which are curable, might be cured.

Indeed the complaint made by Dr. Freind,* of the effects of external applications not being properly adjusted, still remains in full force; few right steps having yet been taken, to investigate their properties. The doctrine of inflammation too, its consequences, and cure, will admit of much improvement. For instance, all the books, to this day, tell us that we

As effects of external applications are not yet properly adjusted.

* Hist. of Physic. p. 56 & seq. vol. i.

INTRODUCTION.

must first attempt discussion in every inflammation: and notwithstanding suppuration comes on, we must forward it as much as possible: whereas nature herself proceeds with no such uncertainty; and if writers would have consulted her instead of books, they would long since have discarded this inconsistent doctrine, and have known when to have attempted discussion, and when to have let it alone*. The ancient doctrine of *laudable pus*, as it is called, being necessary to the cure of ulcers, is universally believed; yet upon inquiry, this opinion will be discovered to be ill founded †; and that even in many cases, attempts to procure laudable pus, are not only unnecessary, but injurious. The application too of digestives, composed of rosin, wax, and heating ingredients, to wounds, is still in general use; but cer-

Instances
of erro-
neous doc-
trines re-
tained.

* See Treat. on Inflamm. chap. ii.

† See Ess. on Ulcers.

tainly

tainly with great impropriety ; and there cannot be any doubt, but nature for the most part brings on digestion in them, in opposition to bad practice. Irritating dressings are very frequently applied to sores, already preternaturally irritable ; hence they are injurious and repugnant to common sense. Nor are the ointments commonly employed in ulcers, the most eligible ; wherefore, without mentioning other particulars, the necessity of pursuing the plan spoken of in the preface, is obvious.

By medical surgery we do not only mean external diseases, where both dressings and internal medicines are required, but also such complaints as are cured wholly by outward remedies ; because, in this instance, *the band and external medicines*, which subdue the disease by their medicinal virtues, are both employed at the same time. Accordingly Celsus, in his fifth book, places wounds, ulcers, inflammation,

Medical
surgery
what, and
the line
which se-
parates
medicine
and sur-
gery
drawn,

flammation, erysipelas, gangrene, tumors, &c. in that branch of medicine, which opposes diseases by medical composition ; and very properly confines surgery to those diseases, where the principal intention is accomplished by the hand. Wherefore, if a line is to be drawn betwixt these two branches of the profession, surgery must be confined to its original designation, *manual operation*, such as making a wound, removing extraneous bodies, &c.

The practice of medicine immediately takes place, when the dressings are applied ; and for this reason, the dressing of wounds characterized the art of healing, long before surgery was distinguished by any particular name. The word *beal*, seems to have been originally understood to signify the healing of wounds : “ *I wound, and I beal* *.”

* Deuter. cap. xxxii. verse 39 about six hundred years before Homer, and one thousand before Hippocrates.

Those

Those, therefore, who were employed in this office, were called *bealers*. Nor had the appellation of *Rauphe* among the Hebrews, *Ietros* among the Greeks, or *Medicus* among the Latins, any other meaning *. Wherefore Homer says †

Ἰηρὸς γὰρ ἀνὴρ πολλῶν ἀνταξίος ἀλλῶν
 ἵεσ τεκταμνείν, ἐπὶ τ' ἥπια φαρμακὰ παύσσειν.

The Ietros is a man preferable to many others, in extracting arrows, and applying mild medicaments to the wound.

Nor can there be clearer limits of two branches of the same profession, than this passage describes : extracting arrows being surgery, and the external application of remedies, physic ‡.

An

* Iatrike is a technical term, still used to signify that branch which treats of the healing or curing diseases.

† Hom. lib. xi. v. 514.

‡ It is well known the word *physic* is not properly applicable to any of the branches of medicine ; but, as it has been so long transferred from natural philosophy to that science, and is so well understood in this sense,

Medical
surgery
extends it-
self into
every part
of medi-
cine and
prevents
opera-
tions.

An inquiry then into the medical part of surgery, leads us from the confined views of an operator, to a more extensive contemplation of nature and her works ; a true insight into nature being requisite, whenever medicines are used. For how is it possible to act with propriety without knowing their powers, and the state of the parts to which they are to be applied ? Nor can the end of using medicines be any way attained (unless by accident), without true medical knowledge. Surely they know very little of the matter, who can suppose the duty of a surgeon extends no farther, in the cure of any external disease, than the use of his knife or plaister, and a manual neatness of bandage !

it seemed proper to use it for the sake of distinction. We have also often used the word *medicine*, according to the modern acceptance, in opposition to the word surgery, though it properly signifies the whole art of healing.

Notwith-

Notwithstanding, therefore, that the moderns have called the treatment of wounds, ulcers, &c. surgery, contrary to the direction of Celsus *; it is still, and ever will be, strictly the medical branch; for it is medicine, and not surgery, which effects a cure. He therefore who undertakes the cure of external complaints, requires now many more qualifications than Celsus has enumerated †, as requisites necessary for a surgeon: because contrary to the practice of his days, what he called surgery, and the branch which cured by medicaments ‡, are united; and the first object of the surgeon is now to prevent operations by *medicaments*. Besides understanding anatomy and the animal

* See preface to his fifth book.

† Lib. vii. Preface.

‡ Later writers have distinguished these two branches into *chirurgery* and *chirurgical operations*, see *Aquapendens*. But surely this distinction is unclassical.

œconomy,

œconomy, he should be able to distinguish from the appearance of a wound, ulcer, tumor, &c. in what manner any of these diseases, may affect the whole body. If he is not well versed in the sedative and stimulating properties of applications, together with the different kinds of irritability, and its consequences; he will often be counteracting nature, instead of assisting her. Even by the improper use of precipitate, and similar applications, he may subject the patient to rigors and their effects, by increasing the irritability of the whole habit*; and bring on a train of misfortunes, which skill and a proper conduct would avoid. Hence his being conversant with the state of the body, the nature and action of medicines, and with what changes different kinds of medical combinations produce, is indispensable.

* See Essay on Inflamm.

Different kinds of acrimony require different correctives. He must, therefore, be able to judge, what kind of alteration the matter in sores has undergone, when it degenerates from health ; whether it is owing to a diseased habit, or a local complaint ; he must understand in what manner these may affect each other, and what particular kind of remedies are necessary to restore the juices, &c. to a healthful state ; otherwise he will be deficient in his practice. Nor is it even possible for him to apply a bandage with propriety, unless he is thoroughly acquainted with the nature of obstruction, tension, relaxation, &c. In short, he should be acquainted with all a physician ought to know ; for if he cannot foretel, in general, what kind of effects will be produced upon an ulcer, &c. both by external and internal medicines, he will often meet interruption from an improper use of them. For instance

stance, if he does not know that purges increase the running of sores, he may often bring on a flux of humors by increasing irritability, when he intends to lessen it; and not less frequently occasion a degeneracy of a healing sore into a bad state, by an improper use of them. If he knows not from the appearance of a corrosive ulcer, whether mercury corrects or increases the disease, he may as often do irreparable injury as service; and if he cannot judge from the fleshy fibres, together with the discharge, what remedy is to be chosen as an antidote, he will be equally in the dark.

All this, I imagine, will be allowed me; and yet it seems very evident, that but little attention has been paid to these particulars. For is it not usual with surgeons to have one common digestive, which they use upon most occasions? And is not this like prescribing the same purge in all cases
and

and constitutions? Would any one suppose, that the cure of an exceeding sensible sore had ever been in view, when the ointments in common use were devised? Is it possible to reflect without horror on the using yellow basilicon, softened with turpentine, or mixed with precipitate* to digest an ulcer, where the nerves are already preternaturally irritable? or, if we take a view of the consistence of the yellow basilicon of the shops, and of the materials of which it is made, may it not be imagined, that the state of the nerves and the action of topics had never been thought upon? The black basilicon is omitted in some dispensatories, notwithstanding it is certain, that pitch, made into an ointment, is a powerful sedative, and often more readily and effectually takes off preterna-

Want of
attention
to the ef-
fects of
topics in-
stanced.

* It is said, "that precipitate produces laudable pus," and is therefore useful; but this it effects by increasing heat, which we shall hereafter shew is not always necessary.

tural

tural irritability in fores than any other remedy; and may be used with happy effects, where no other application can so properly take place.

Modern writers have improved the plan of their predecessors, but without extending it far enough; and topics should often do more than lie easy upon the part.

However, in the surgeons books belonging to our hospitals, less irritating digestives than the yellow basilicon of the London dispensatory are prescribed; and the college at Edinburgh have improved this plan, by ordering their yellow basilicon to be made with a less quantity of heating ingredients, and a larger quantity of hog's lard, and oil, so as to give it a softer and a better consistence. It were to be wished, they had also directed an application for recent wounds; because, in these not only turpentine, but also rosin and wax are quite out of place. I have not any doubt but many surgeons apply still milder dressings than those in common use. The indiscriminate use of preparations of lead, must often have prevented

vented the application of irritating dressings; and there are surgeons who condemn those ointments, in which there is a large proportion of resin or turpentine, or whatever irritates; and recommend emollient fomentations, poultices, and simple ointments in their stead.

There is some danger however, of running from turpentine and heating dressings, into the opposite extreme; and a fashion I see is arising, of leaving nature to accomplish her own work, under the application of inactive remedies, incapable of giving her assistance. No man is a greater advocate for simplicity in remedies, than I am; but *intention* should at the same time be pursued. Former practitioners certainly did right in employing different remedies for different intentions, as the cases might require; for though nature cures diseases, she must be assisted by art, and though avoiding painful applica-
tions

tions is a main object to which the surgeon should always attend, yet if we only have in view the choice of those remedies, which by their simplicity, and mild disposition, are incapable of giving pain, we extend our refinements too far ; as such practice is equally capable of doing mischief, with attempts to subdue diseases by storm. In the one instance, the efforts of nature are overpowered and stifled ; in the other, she is destitute of help : and I will venture to affirm, that the most simple and healthful ulcer, will frequently degenerate into an exceeding bad state, under the long-continued use of ointments made of wax and oil, poultices, or fomentations. For these things, by relaxing, occasion the vessels in the affected part, to be distended and overcharged ; the stagnating juices become acrid, irritate, and inflame, and I have seen the worst consequences under this treatment.

Poultices, fomentations, &c. in some cases occasion the degeneracy of an ulcer into a bad state

It

It is not always sufficient then, that remedies are mild, and lie soft and easy upon the part ; they should frequently have a power as we shall occasionally shew, of preventing inflammation, of easing pain, of removing obstruction, of correcting acrimony, and of taking off that kind of irritability which emollients increase. For these purposes the neutral salts, preparations of lead, the different kinds of native balsam (either in their natural state or divested of their heating property), warm gums, opium, the essential oils properly corrected, antiseptic liniments, the application of Peruvian bark, alum, cold water, spirit of wine, and a variety of other things, have the preference to each other under different circumstances ; and different combinations of these assistants produce distinct and necessary effects.

Nor have we any reason to believe, that the effects of internal medicines have been

D

properly

properly attended to, in the cure of external diseases, when we view the contradictory methods proposed in books, and see surgeons of the first eminence advising a salivation indiscriminately, when an ulcer is difficult of cure; and purging once or twice a week to prevent it from breaking out again when healed! Nevertheless, we do not point out this practice to decry the medical abilities of surgeons in general; for in many places they act as physicians in ordinary, have frequently a medical education, and often display a respectable degree of physical knowledge in their writings.

The objections made to surgeons understanding the practice of physic recited.

But it is alleged, "that an absolute neglect of a liberal education, most commonly happens to the generality of surgeons; which is apt to induce quackery, or at least a narrowness of thinking about medical subjects, and an absence of that comprehensive, and universal knowledge,

“ledge, as well as that ingenuous cast of
 “temper, requisite to complete a physi-
 “cian * :” and I am fearful there is too
 much truth in the assertion. But, on the
 other hand, as ornamental learning has
 too frequently concealed ignorance in me-
 dicine, it may be worth while to inquire,
 how far it is necessary in the practice of
 physic. An early and regular cultivation
 of learning enlarges the mind, trains it
 up to application, gives an active disposi-
 tion to inquiry; and by a proficiency in
 languages, other studies are with more
 facility acquired : but it does not appear
 from what may be observed, that these
 acquirements are always accompanied with
 an ingenuous cast of temper ; though an
 illiberal disposition is, I think, a certain
 criterion of a narrow mind, and often of
 a want of true professional knowledge.
 However, there is not a stronger recom-

* Brocklesby's Med. Ob. p. 37.

The advantages of classical learning, and what share of it is sufficient for the study of physic.

mendation to a young practitioner, than ornamental learning, because few men only can judge of the medical abilities of a physician, but many of polite literature ; and they give a physician credit for skill in his own profession, if they find him possessed of this kind of science. It is, therefore, an ornament every one would wish to wear, on account of these advantages, had they time to procure it. But as medical surgeons are early employed in medicinal practice, they very seldom have an opportunity of acquiring classical erudition, equal to those who have an academical education*.

* Those intended to be educated in medical surgery, should not leave school till they are seventeen ; they should afterwards engage with a proper person to assist them in reading languages useful in their profession at leisure hours, for three or four years longer ; and when they begin to feel the pleasure of extending their literary knowledge, they will not be wanting in this pursuit.

It

It fortunately happens, however, for these gentlemen, that classical or polite literature, and the necessary qualifications for a good physician, are distinct and very different things. Baglivi asserts, that though logic, mathematics, the various idioms of languages, rhetoric, &c. are considerable ornaments to the profession, yet they are not more conducive to a circumstantial and exact history of diseases than the art of painting is to a musician. And, in support of this opinion, we might bring sufficient evidence to prove, that in proportion as physicians have interlarded their books with passages from the Greek and Latin poets, medical knowledge has been wanting ; because the mind has been employed in contemplating the beauties of those celebrated writers : and whoever takes a view of the impediments to the progress of medical knowledge, will often find them arise from studying science un-

connected with medicine. Accordingly Lord Bacon observes, "that physicians
 "have appeared to more advantage as
 "poets, antiquaries, critics, politicians,
 "divines, &c. than in their own profes-
 "sion;" because in his time, the line of
 education led chiefly to these studies.

Instances
 in proof.

No one I believe will contend that Dr. Mead was a better physician than Sydenham, because he was a more polite scholar and a greater philosopher. The reason is obvious; for Sydenham was not diverted by speculative reasoning, but learned by strict observation the nature and cure of diseases; whereas, the other was often manifestly led away from the proper object by pursuits foreign to his profession. Therefore, though classical learning, &c. may be necessary to form an elegant writer, or a distinguished orator, or may enable a man to appear with lustre in conversation, yet if it is not immediately connected

ned with medical knowledge, much time may be lost in acquiring it, which ought to have been spent in other studies. Those who are not so highly polished, may acquire sufficient skill in the art of healing, if they have a competent share of understanding in the Greek and Latin languages, and attend proper medical schools, after they have learned the materia medica, the art of compounding medicaments, and their external and internal effects upon the human body. For the mind is put into action, and more enlarged, by the study of nature, than by any other kind of learning; and those who practice medical surgery, have nature constantly before their eyes.

The human body is a machine *sui generis*, that can only be explained by its own laws and principles*; the effect of medicines

The human body to be studied upon its own principles; the cure of diseases to be learned by clinical practice.

* As the study of physiology leads to hydraulics, optics, pneumatics, mechanics, &c. some advise the

And
therefore
surgeons,
without
great clas-
sical learn-
ing may
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sic.

cines and the cure of diseases are no ways to be learned but by clinical practice. Therefore, if the mind is enlarged by the study of the animal œconomy, and that part of nature immediately connect- ed with medicine, there cannot be any doubt but surgeons, of tolerable abilities, with the education spoken of, and the in- formation obtained in the nature and seat of diseases, by their office of opening mor- bid bodies, may acquire every kind of knowledge requisite to the study of me- dicine. And though they may not be pos- sessed of the art of persuading, or able to

study of these, previous to the study of the animal œconomy, by way of preparatory knowledge: but, when thus employed, they have always been defective, and frequently led into egregious error. After the office of the human body is learned upon its own principles, so much of the other sciences may indeed be inquired in- to, as seems to be connected with the subject: they will, in many instances, explain each other, care being taken that the foreign aid is always made subservient to the object in question.

distinguish

distinguish themselves as great scholars, yet, as we shall presently shew, those brought up in medical surgery have, or may have, every advantage of information, in collecting the histories of diseases, and their cures, at present written, and of improving them by their own observation.

The chief mistake committed by medical surgeons, is leaving off their studies just when they have qualified themselves for pursuing them! Instead of considering the instructions they have received in medical schools, as an opening to the mind, and the beginning of inquiry only, they think themselves completely furnished, and are content with the little store of undigested knowledge they have gathered in a short time. But, without fresh supplies, this knowledge degenerates, and evinces the truth of the observation, that the mind, like the body, unless it is constantly nourished with proper food and exercise,

From whence a deficiency of knowledge in medical surgeons sometimes arises.

exercise, becomes feeble, and of very little use.

Perhaps some may read over the modern publications in medicine ; but reading without good digestion does very little service, and often harm : the digesting of any kind of learning consists in beginning at its origin, and tracing it to its present state ; for which purpose the ancients must be consulted, that the origin of practice may be known * ; a collection of facts, either from observation or experiment, must be made ; time and reflection exercised ; a regular chain of rational examination pursued ; and the result of inquiry collected and methodised : for unless this plan is adopted, erroneous opinions, crude concep-

Medico-chirurgical knowledge in what manner to be obtained.

* Suppose for instance, we were to meet with a new powder recommended for the cure of an Erysipelas : upon examining the history of this disease, we shall discover this practice to be the spawn of an ill grounded hypothesis, and a very injudicious treatment. See Erysipelas.

tions,

tions, and superficial knowledge, always appear in cases of difficulty,

But those who have not been trained up to thinking, by continual application, find it difficult, I imagine, to fix themselves down to consider things attentively; because few study their profession scientifically*: nevertheless, resolution and perseverance, in searching after knowledge, will certainly overcome this difficulty. When the mind is properly bent to a habit of thinking, it will not fly back; and assiduous inquiry will become a pleasure instead of pain. Sydenham †, a proper example, spent more of his time in thinking than in reading; nor have any men living more time upon their hands, or better conveniencies for this purpose, than

The disadvantages of the mind not being trained to thinking.

And in what manner a habit of thinking may be acquired,

* There are many who become exceeding good surgeons in common cases, without being able to extend their practice beyond a certain line: but if these gentlemen would view their profession upon a larger scale, they would be still more useful to society.

† Dedicat. Treat. on the Gout.

those

those who ride about to see their patients; having frequent opportunities of observing facts, and uninterrupted time to unravel them. Nor do I know any method, which so effectually makes a long journey easy as reflection; and surely it is negligence to the last degree, not to employ this time (which otherwise must hang heavy), to the advantage of mankind.

According to the opinion of some physicians, it is not necessary for surgeons to extend their knowledge farther than manual operation, and the application of dressings: for they imagine all diseases, both external and internal, fall properly under their cognizance; and assert an exclusive claim to the direction of all internal medicines. On this principle, an able practitioner, for whose memory I have the highest regard, in pointing out how far the province of the physician extends, says, "suppose a person to break his leg, and

Physicians claim the privilege of prescribing internal medicines in all cases.

“ and a fever and a gangrene to ensue ;
 “ the question occurs, whether the limb
 “ should be immediately amputated, or if
 “ the effects of certain remedies, given
 “ with a view to stop the progress of the
 “ gangrene, should be waited for till an-
 “ other day ? It is evidently the business
 “ of the physician in this case, to judge
 “ from the symptoms, from the habit of
 “ body of the patient, and other circum-
 “ stances of moment *, whether the delay
 “ is prudent or not.”

Now according to this doctrine, the
 operation and dressing the wound only,
 are left for the surgeon ; which is making
 a division, or fixing boundaries betwixt
 the two professions, that cannot any way
 be warranted : unless the physician takes
 upon himself the whole management of

The bound-
 aries be-
 twixt phy-
 sic and
 surgery
 improperly
 describ-
 ed by
 them, as
 instances
 evince.

* This expression carries with it the air of mystery,
 which I wish to see entirely banished from the practice
 of medicine.

the

the patient, after the operator has done his office. But should he not rather have justified the pretensions of the physician to taking the task upon himself, by shewing an acquaintance with the subject referred to? Those who understand the treatment of gangrenes, know that there is not any question in the case; as it cannot be right to think of taking off a leg invaded with a grangrene, whether it be local or not, while any fever exists. Nor is it possible to judge properly, whether a disease is local or constitutional, whether spreading or stopped, from what cause it arises, or what kind of remedies are necessary, unless from the aspect and state of the diseased parts. It must be mere guess-work in the prescriber, if he does not gain information from the state of the ulcer: and surely they must be the best judges in this matter, who have the most frequent opportunities of information, by constant and attentive inspection.

By

By the same rule, physicians ought to determine, whether a person with a violent bruise upon the head, without a fracture, should be trepanned or not. But in a case of this kind related by Mr. Pott*, we see the physician did not comprehend its true nature, from not having seen much business of this kind; and not being able to form any opinion from the appearance of the skull and the parts when laid bare, over-ruled the only method, when proposed, which could possibly have given relief; and suffered the patient to die unassisted, from matter being confined within the skull, while he was prescribing internal remedies, from whence no possible good could be expected or derived †.

Again, according to the case stated, physicians ought to direct, whether an ulcer of long standing should be kept open or

* On Wounds of the Head, case 3.

† See a case in point, in injuries of the head, following.

healed

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healed up : and yet it is impossible in many instances, for any man living to know whether the disease arises from a bad habit of body, or an affection in the part itself, till the vessels about the ulcer are rendered pervious by proper applications ; and our steps, if we chuse to act with certainty, must be directed by the knowledge we gain by this proceeding. But, indeed, ulcers cannot be radically cured while the constitution remains bad. Instead of relieving, they for the most part are injurious to health. So far from draining off noxious humours, &c. they load the body with disease, by matter absorbed from them ; occasion an hectic fever, erysipelata, and those abscesses and ulcers in the liver, and other parts of the viscera, with which they are sometimes accompanied. When we treat of chronical ulcers, we shall shew that they ought always to be cured as soon as they will admit of being healed.

But

But farther, suppose a man to have the misfortune of a compound fracture in his leg, and being seized with rigors, fever, and other unfavourable symptoms; some time after digestion has come on, a physician, unused to the dressing and local management of these accidents, is called in: in what manner is it possible for him to give proper assistance, when these symptoms take their rise from confined matter, from improper dressings, from splintered bones, or a bad position of the limb? It is true, he may level his prescriptions at the symptoms, but the cause must be removed by the skill of the surgeon; and, if he is deficient in knowledge, and depends upon help altogether from internal medicines, it is ten to one that the patient dies *secundum artem*, and there is an end of the matter.

A man was seized with an inflammation in the scrotum, without any symptoms of
E plethora,

plethora, but attended with pain, fever, and a large emphysema, as often happens. His physician ordered repeated bleeding, low diet, purging and cooling medicines to disperse the swelling; but a mortification came on, and the man died.

Now inflammation in the scrotum, attended with emphysema, very frequently terminates in a local sphacelus, owing seemingly to the slowness with which the blood moves through this appendage to the body; because the mortification stops, when it arrives at those parts where the blood circulates with more vigour. It has been observed to come on more particularly where large evacuations have been made; and might not this patient sink into the arms of death, in consequence of nervous energy being weakened by such treatment, in opposition to the best surgical conduct?

This division of the professions, therefore, cannot properly take place, unless
the

the physician is well skilled in the management of wounds, ulcers, &c. by practising the cure of external diseases affiduously, for a proper number of years. For, without taking these steps, it is impossible to judge rightly about the nature of the malady, and the impediments to health ; as we cannot form a true notion of those things, with which we have not made ourselves familiar : “ and when there is “ no certain knowledge of a thing, mere “ opinion cannot discover a sure remedy*.” A general knowledge is all that can be pretended to, by those who have not practised surgery, which is commonly insufficient for the purpose. Indeed, practice upon general notions, in any branch of medicine, can only be excused in those, whose opportunities of experience have not furnished them with better knowledge. A perfect acquaintance with every

General knowledge insufficient for understanding surgery.

* Celsus,

circumstance in diseases, and in the method of curing them, distinguishes the physician ; and I am fully persuaded, that a person who is well acquainted with the history of diseases, and the effects of those remedies, whose use is discovered by practice, will make a much better physician than one who prescribes theoretically, and indiscriminately orders medicines in the same class. Lord Bacon * observes, “ The
 “ sense of hearing or seeing afar off, is
 “ full of mistaking ; but within due distance of the object, errs not much. So
 “ it is with the understanding. For men
 “ use commonly to take a prospect of
 “ nature, as from some high turret, and
 “ to view her afar off, and are too much
 “ taken up with generalities ; whereas, if
 “ they would vouchsafe to descend, and
 “ approach nearer to particulars, and more
 “ exactly and considerately look into

* Advan. Learning, lib. iv. cap. 2.

“ things

“ things themselves, there might be made
 “ a more true and profitable discovery
 “ and comprehension. The remedy of
 “ which error is, to go nearer to the ob-
 “ ject; and, therefore, there is no doubt,
 “ but if physicians, letting generalities go
 “ for a while, and suspending their assent
 “ thereto, would make their approaches
 “ to nature, they might become masters of
 “ that art whereof the poet speaks,

“ Et quoniam variant morbi, variabimus Artes,

“ Mille mali species, mille salutis erunt*.”

Nor is there any branch of the profession to which this can be more properly applied than medical surgery.

It is true, when an inflammatory, putrid, hectic, or leucophlegmatic diathesis, &c. accompanies an ulcer, the state of the patient, and necessary treatment, may in some measure be known without looking at the sore; yet the appearance of the

* Ovid R. A. C. 2.

Appearance of the local affection affords the surest criteria to go by.

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local affection will afford the surest criterion, and we should therefore descend to particulars. These cannot be known, without understanding the aspect of the diseased parts. It is impossible, for instance, to treat an external inflammation properly, unless by accident, without knowing the criteria, which distinguish whether it ought to be dispersed, or brought to suppuration; and these can only be understood by a familiar acquaintance with the different appearances in this disease. We shall hereafter shew*, that for want of proper attention to the knowledge that might be acquired by examining the affected part accurately, much mismanagement has arisen in the cure of this complaint. Suppose a person having lost much blood from a wound, looks pale, has swelled legs, is feeble, and has a weak pulse; it is no difficult

* See Treatise on Inflammation.

matter

matter to discover what kind of treatment is necessary; but the appearance of the fibres in the sore will best determine whether diet or medicine, or both, should be used.

Indeed every ulcer is an index to the habit of body*; we even see into the constitution, and from the naked fibres discover health or disease, the nature of disease, and the manner in which it is likely to terminate; especially if assisted with well adjusted dressings.

Every ulcer an index to the habit.

Great information too, is often received by the touch, which is not to be learned by words. Even the smell of the matter discharged gives knowledge, and frequently foretels, when all other symptoms are deficient, a distant but approaching death, if not prevented. The effect of medicine is most obvious in sores, and a

* Witness the ulcer made by inoculation; see Dimf-dale, p. 30. which we instance, because every body knows it.

proper number of trials under different circumstances, will determine in what kind of sore each of them are proper, and what is to be expected from them. Wherefore the appearance of the sore, and the symptoms attending it, will ever point out, to a careful observer, the exact state of the patient; will best direct what internal medicine is to be chosen, and whether a combination of medicines are necessary. People used to the cure of venereal complaints, will soon discover a venereal ulcer by its aspect; the method of cure to be pursued immediately follows; and just so it is with all other ulcers. Bark, steel, opium, elicampane, elm-bark, mercury, nitre, acids, lime-water, and a variety of other medicines, have been found serviceable in the cure of ulcers; but in what kind each of these are proper, words cannot describe. The look of the ulcer only can determine this point; and unless the know-

knowledge of distinguishing one ulcer from another, and the effects of different medicines upon them, be acquired by careful attention, all proceedings are conjectural and uncertain.

Besides, is not prescribing internal remedies only, in external complaints, stopping short; for may not an injudicious surgeon, frustrate every attempt of the physician? Suppose a gangrene to be occasioned by extreme inflammation, and the surgeon follows the indiscreet doctrine of using in all cases spirituous and heating applications; will he not increase the disease in opposition to every internal attempt to abate it? If the gangrene arises from acrimony in the fluids, accompanied with great irritability in the affected part, and the physician, along with other things, prescribes opium; may not the surgeon by the common practice of applying fomentations, and turpentine digestives, prevent

Prescribing internal medicines only in external complaints, is stopping short; and prescribing external remedies without sufficient experience, injurious.

his

his intention taking place? For the one by increasing putrefaction, and the other by inviting a flux of humors to the part, will increase the disease. Or suppose a person to have an ulcer in his leg, with swelling, inflammation, and pain; and the surgeon, from an opinion that mild and soft applications are proper to relieve the patient, uses exceeding mild digestives, emollient poultices, fomentations, &c. I will venture to affirm, the fore and the health of the patient will often degenerate into an exceeding bad state, in opposition to all the physician can do. Nor, if the physician takes upon himself the whole management, without sufficient experience, is he likely to be more successful in the use of his applications? A farmer had a very large *stirrhus* on the side of his chin, which was become rough, unequal, of a muddy red colour, and a softness in some parts of it, pointed out that the acrid
aid
ichor

ichor underneath would soon corrode its way out ; wherefore he consulted a young physician of good abilities, in what manner to proceed. He advised him to take extract of hemlock twice a day, and ordered the surgeon, into whose hands the prescription might fall, to apply a hemlock poultice daily, till the tumor was upon the point of breaking : then to cut down into it with a knife, as deep as could be done with safety, and to apply a mild digestive, composed of *balsam of capivi*, and *unguent. e gum elemi*, as often as occasion required ! An apothecary who had the tendons of his thumb contracted, fell down upon the pavement, and putting his hand before him to save himself, lacerated the tendons, and made a small external wound. This was at first overlooked, but the adjacent parts shortly began to swell, and when his hand became painful, and brought on a fever, a physician was called in ;

in; who seeing an erysipelas, ordered it to be dredged with flour*, and directed at one time neutral, and afterwards volatile salts to be taken inwardly: after which a mortification came upon the whole arm, and the patient died. Dr. Buchan, in his noted book, tells us, that after a wound is become very *superficial*, it must be dressed with the yellow basilicon of the London Dispensatory. Another physician tells us, that ointments are always injurious in sores, and ought to be intirely rejected from practice! In every instance advice is most likely to be equally replete with mischief, where the prescriber has not properly instructed himself for the purpose. Even from Hoffman we might bring many instances in support of this assertion; and yet I am persuaded, physicians have acted from a thorough conviction of doing

* See Erysipelas.

right;

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right; and, reflecting upon the enlarged understanding they generally possess, it is much to be lamented, that they have not made it a rule to learn by practice, the cure of external diseases. Whereas they have deceived themselves, by mistaking *ideal* for *practical* knowledge; for opinion without practice is nothing more. It unavoidably happens, that the cure of internal disorders is but a conjectural art; in consequence, physicians bred wholly to this department, are obliged often to reason from supposition*; and some of them are hence led to content themselves with forming opinions about the nature and cure of external disorders, which perhaps they but imperfectly, if ever, saw.

* Nevertheless, many sensible men, I observe, leave this field of uncertainty, and tread upon surer ground, by learning the history of diseases, and the method of curing them; and by this means our country possesses a considerable number of able physicians.

Indeed

Dividing
the same
disorder
into shares,
an abuse.

Indeed, I do not think a greater abuse has ever crept into the art of healing than dividing the cure of the same disorder into shares; it being not uncommon for the physician and surgeon to act, without design, in opposition to each other, and prevent either giving relief*. One of them at least ought to understand the whole of the matter; for learning the cure of a disorder only in part, carries on the face of it imperfection in practice, and must be destructive of those advantages to mankind, which might otherwise be expected.

Not
thought of
by the
Greeks:
their division
rational; in
what manner
made, and might
readily be
pursued.

The Greeks who first proposed dividing medicine into three parts, never thought of such a glaring absurdity as dividing the same disorder into shares, well knowing there is no studying diseases by halves. Their division was rational, being in practice and not in science; it is the only division which can take place, with any sort

* See Examples.

of propriety, and would intirely put an end to those inconveniencies, which must arise from the physician and surgeon having different interests in view. And as it has either been misunderstood or misrepresented, we will venture to explain the meaning of Celsus in this particular.

A modern writer has said, "There was anciently, as Celsus informs us, a division of medicine into three parts; the first regarded the regulation of diet; the second, prescription of medicine; the third, manual operation. The two first, though distinguished in theory, were always united in practice, the last has been practised separately". This account no way agrees with what that celebrated writer has said; and one would imagine those who give it, had never read his book, the division he speaks of being of a very different kind.

After

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After shewing, that medicine had been carried on, down to the time of Herophilus and Erasistratus, in an union of all its branches, he says, " during this period " medicine was divided into three parts, " one cured by diet, another by *medicaments*, a third by manual operation. " The first part was named in Greek " *Διασθητική*, the second *φαρμακευτική*, the " third *χειρουργική*, *each deriving its appellation from the principal method taken to " effect a cure*; therefore, as that method " which cures *chiefly* by diet, sometimes " admits medicaments, so that which " *chiefly* opposes the disease by medicaments, ought also to attend to diet *." From whence it is very evident, that it was a separation in the different branches of medicine, and not in prescribing diet and medicines, which was intended: for

The Greek
division
explained.

* This reading is taken from his general preface, and from the preface to his fifth book.

though

though they had different appellations, each sect had the whole management in those disorders which fell properly under their care. Accordingly, if we take a view of the several chapters in which each of these subjects are treated, we shall discover that one set of practitioners undertook the cure of internal, and the other of external disorders; and whether they were of that class which cured *principally* by diet, or *principally* by medicaments; yet each party took in every necessary aid for his purpose, both from diet and medicines. The first four books evince, that the dietetic branch were to have the intire management of all disorders, which confined themselves to the inward parts of the body, and originated internally*. The fifth and sixth books shew, that the Pharmacutists had the whole direction of diet

* Aretæus and Cælius Aurelianus confined themselves to this line.

and medicines in all the external disorders (which now belong to surgery), where the principal part was not conducted by the hand, whether arising from an external or an internal cause, being the sect which are said to have prescribed medicines; and surgeons cured the wounds they had made, both by diet and medicine. Those who cured internal, and those who cured external disorders, without manual operation, had the appellation of *Ietros* among the Greeks, and *Medici* among the Latins; nor was it intended that they should interfere with each other in their different departments. But, notwithstanding this division has not been adhered to, each party invading the province of the other, yet it still exists, and might easily be adopted with advantage to the community, under the appellations of phyfic, medical surgery, and surgery*: the apothecary

* We have used the word Surgery, in this place, in its primitive sense.

early being the medical instrument-maker only, to the whole.

Parey, Aquapendens, and Wiseman's books, among many others, are exactly upon the plan prescribed by the Greeks, and followed by Celsus, as a proper model for the province of those who practice the cure of external diseases; and though it is true Parey and Wiseman mention physicians, who did not practise surgery, sometimes interfering; yet when we examine how this originally happened, we shall find it began in a manner no ways favourable to medical science. For, unfortunately, the topical treatment of external diseases fell into the hands of Barbers, who were perfectly ignorant of use of internal medicines; of course, when these were necessary, they were prescribed, by what may still properly be called the dietetic branch, who had never practised what we now improperly call surgery.

Hence *a new or second division* in medicine took place, though perfectly unnatural, because it most certainly retards the progress of science.

Nevertheless, there were at all times regular practitioners, educated in the whole treatment of external maladies, who complained loudly of the ignorance of the barbers; and of the ill-treatment the patient commonly underwent, from their being unacquainted with what belonged to this part of the art of healing. Hildanus, Marchettis, and many others, give us abundance of notable instances of this sort. Hoffman describes the German surgeons* as in a wretched state of ignorance; nor do the statutes of the College of Physicians, in the last century, exhibit a more pleasing picture. In the form of consulting, they say, "Because Apothecaries and Surgeons, but especially the surgeons, often

* Med. Polit. cap. 2.

"bring

“ bring the urine of sick people to physi-
“ cians, and desire they would inspect it,
“ and prescribe for their (surgeons) pati-
“ tients, managing under this pretence of
“ consultation, the whole cure at their
“ pleasure, and appropriate the gain to
“ themselves, while the physician gets no-
“ thing more than the mean and hungry
“ reward that arises from viewing the con-
“ tents of the urinal : we ordain that no
“ physician shall give advice to such like
“ impostures, without seeing the patient.”

Hence it seems impossible to advance this part of the art, without pursuing the Greek plan ; it being an idle dream to suppose, that a proper qualification for practice can be acquired by any other mode of studying the nature and cure of external diseases. Besides, if the surgeon can be indifferent about the effects of internal remedies, he is dead to the interest of his patient, and destitute of necessary ambi-

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tion, without which he can never rise in his profession. And some of the effects of the second division are these: an unskilful surgeon may conceal his ignorance by calling in a physician unacquainted with the topical management of external disorders, as he is sure not to be excelled in healing the malady; and if the patient dies, he is screened from reproach. It may be observed, in those places, where the dressing of sores, and prescribing internal remedies, are considered as distinct offices, the surgeons exert themselves in those diseases chiefly where the principal part is accomplished by the hand, where very little or no assistance from medicine is necessary; and where they must of course have the whole credit of the cure. But when they are concerned with physicians in the management of chronic ulcers, &c. they only attend to one part of the disease, and under such circumstances medical surgery

furgery cannot do otherwise than degenerate.

However, in those places where, from an improper line being drawn, surgeons do not inform themselves in the manner of treating internal complaints, physicians must be consulted, wherever internal remedies are required. And it must also be confessed that furgery is frequently practised by men of confined abilities. Others, though they are not wanting in good understanding, and have had a medical education, cannot confine themselves to study, and, therefore, remain content with what they have heard in attending lectures, &c. and think it fully sufficient if they can support their practice by a theory learned in the schools; while too many are only anxious about performing operations, which they think the summit of perfection, and the high road to fame. Wherefore, supervisors, or directors, in medical

Surgeons, what sort of unqualified.

Supervisors often necessary,

surgery will often be necessary ; and those who intend to assume this character, should, in my opinion, by a proper education, both in medicine and surgery, qualify themselves duly for the purpose *.

Who should qualify themselves properly, that the physician and surgeon may be both in the same man.

If they intend to confine their practice to the cure of external diseases chiefly, they should nevertheless follow the example of

* After being with a regular bred medical surgeon for at least five years, and storing the mind with plain, simple facts, he may in about four years more finish his education regularly, and take a degree: remembering the caution of Celsus, of rejecting from practice all reasoning he meets with in the schools, not founded upon evident facts. Nor should he be less careful about suffering the art of talking, or theorising about diseases, to seduce him from an attention to practice; as has too frequently happened. I wish to see the study of medicine begin where it generally ends; because, those who begin in theory, too frequently let it guide them all the days of their life, continually fluctuating in practice, as new theories are manufactured and dispersed abroad. Whereas those who are at first trained up in wholly observing facts, have fixed principles to go upon, are steady in practice, and always judge of new discoveries by the resemblance they bear to truth.

Hildanus,

Hildanus, Vesalius, Hieronymus, Fabricius ab Aquapendente, Fallopius, Scultetus, Nuck, and many other eminent men, in uniting the title of Doctor in medicine to that of Surgeon; in order that whenever an internal disease terminates in a manner that requires external assistance, to go hand in hand with other physicians, who may have been concerned. For though no man of sense will refuse consulting with men of abilities and learning in their profession, whether they have a degree or not, yet a line must be drawn as a barrier against the unseasonable intrusion of those, from whom no advantage in consultation can arise. Accordingly we have the pleasure of seeing, that a medico-chirurgical society is instituted at Edinburgh, of which, several of those who graduate are members; who will undoubtedly remember, that surgery is learned, like all other arts, by experience; and that neither

ther a husbandman nor a pilot are qualified in those professions by reasoning, but by practice. Otherwise, we may say of surgery as Pliny said of physic, that the study has degenerated into chattering* : and I am sorry to see some medico-chirurgical books lately made, that cannot possibly teach any other art. But it is evident to common sense, that in the cure of external diseases, the surgeon and physician ought to be both in the same man. By this plan, the physician educated in surgery, will be able to direct the whole of the proceedings. When he meets with other physicians, who do not practise surgery, they will both be upon a footing, their proceedings must be a joint act, of course the cure or want of success cannot be ascribed to either alone. They will be equally interested in the event, a mutual

The advantages
of this
plan.

* Ad verba garrulitatemque descendente. Lib. xxvi. cap. 2.

exertion

exertion of their abilities will be a natural consequence, and a cordial union, which it is hoped would always take place, might be of the utmost advantage to the patient.

It must at the same time be confessed, that I have observed an inconvenience in surgeons commencing doctors; as they are apt to leave off the practice of surgery, to rise in dignity*, and thus give up the advantages which might accrue from the external and internal treatment being conducted by the same person. Without practice knowledge will degenerate, and they may be mistaken in their expectations; for, by changing the ground upon which they have stood, perhaps, with credit, they will meet with very few oppor-

But there are inconveniences in surgeons commencing doctors, unless they still adhere to the practice of surgery.

* The number of cases requiring assistance is much greater in internal than external complaints, which may be another reason for quitting surgery; but the number of medico-chirurgical physicians would only be in proportion.

tunities

tunities of shewing their medical abilities. It is hard to raise a reputation by *practice* in that branch of medicine, where it is difficult to say when remedies do service. The setting out at first as a physician, confers the credit of the character, whether a man understands the practice of medicine or not; but future reputation does not, for the most part, depend upon his knowledge in the art of healing, but upon accident; or, as Dr. Gregory asserts, “on the various arts of flattery and insinuation; and the arts of deceiving mankind into an high opinion of their understanding*.” On the contrary, the cure of

* The reason he very properly assigns for this conduct is, that mankind in general cannot judge properly of the medical abilities of a physician; and that he is therefore obliged to gain their confidence and esteem, by ways suited to their understanding. But, to remove this disgrace to the profession, the doctor proposes that medicine should make part of the education of every gentleman: and I sincerely wish any scheme might take place, that art could no longer prevail over knowledge.

external

external disorders is evident to the senses. The study proceeds upon facts instead of conjecture; superior abilities will always manifest themselves without artifice, and he who distinguishes himself by a thorough knowledge in so useful a branch of the profession, will command attention and respect, equal to any department in medicine. Wherefore, they who quit surgery to gain imaginary dignity, lessen themselves and their services to mankind.

Now physicians themselves allow, that the whole cure of external diseases ought to be in the same person, by asserting, that it is a reflection upon them to be ignorant of external diseases; and by the College of Physicians formerly having a bye-law, in which they insisted that every one of their members should diligently attend the chirurgical lecture for the space of five years. I imagine there are few or no physicians,

Physicians allow that the whole cure of external disorders ought to be in the same man.

ficians, who have not attended chirurgical lectures, read and thought upon the subject, and taken a cursory view of diseases belonging to surgery ; yet these are not sufficient for the purpose. Instead of cursory views, it must be practically learned day by day, by as exact investigations as possible : and though a man may have attained the art of reading ingenious lectures in surgery, yet if he has never practised it, he will know very little of the matter. In support of this assertion, we might give many instances from physicians, who, not being guided by practice, have copied into the books they have thought proper to write on surgery, both good and bad treatment, without distinction. The College of Physicians, no doubt, thought they did right in publishing in their Dispensatory, ointments, cataplasms, plasters, &c as remedies for the surgeon
to

to work with * ; yet they are most of them tools ill calculated for the purpose for which they were intended, or that cannot be used without doing mischief ; and fairly evince, that without practice no good rules can be laid down.

There is something in all diseases which is not to be learned by words or thinking, the eye, or touch, being the chief director in our pursuit. In internal disorders, every body knows there is a judgment to be formed upon sight of the patient, which words cannot describe. For instance, in external disorders, were a cancer and a fungus, arising from a foul jaw-bone, to be described upon paper ; the same set of words must often be used for both of them,

But this
is not to
be accom-
plished
without
practice.

* This seems to have been owing to precedent. The first Dispensatories were compiled from the writings of those Greek physicians, who practised both physic and surgery ; and the same form has ever since been continued, though the means for acquiring knowledge for the purpose has been long laid aside.

and

and yet there is something in their looks; which distinguishes them from each other and points out, to experienced and keen-sighted men, that one of them will admit of a cure. Nor is it possible for any method, but the *tactus eruditus* to distinguish the difference betwixt a *scirrhus*, and an induration in the breast; and so on, in a multiplicity of other diseases we might enumerate. Indeed, I believe it is an incontrovertible truth, that all the real knowledge existing, is derived from experience; and, that without practical experience true knowledge cannot be obtained. Hearing and reading, unless extended into practice, which converts them into real knowledge, only teach men the art of talking and writing ingeniously; but talking about diseases, and knowing how to cure them, are distinct and very different things. Students in medicine must be allowed to be the greatest of physicians, if reasoning

For all
real know-
ledge is
derived
from ex-
perience.

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ing could make them so; whereas they have abundance of words, and very little skill in the art of healing. Nor is it possible to form a true judgment on the medical abilities of any man, till we see him apply remedies as exigencies require; for there are many who cannot communicate their ideas, and yet soon convince us, that they know in what manner to proceed upon being set to work; *et vice versa*.

Eloquence, or other arts of deceiving, which have often been successful in some branches of medicine, will never gain credit in the management of those diseases, where the nature and cure are evident to the senses. Something substantial and convincing must be done; for without a cure is obtained, an obstinate ulcer (for instance) will remain a mark of unskilfulness in the prescriber, unless the blame falls upon the dresser, or the physician succeeds in persuading the patient that he ought not to

Why talking will not gain substantial credit in the cure of external disease.

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think of being cured for fear of being killed. Or should he escape censure from having acquired the character of a man of great learning, skill, and sagacity, in the cure of internal disorders; yet, however this may prevail with other people, he ought not to suffer it to deceive himself, by supposing that he understands the nature of complaints he has not properly attended to. Nor is it sufficient that physicians and surgeons of eminence, who have only studied external diseases in part, from unconnected meetings*, countenance each other and escape censure in an unsuccessful case with impunity, if a thorough

* Hoffman indeed, laid it down as a rule, Med. Polit. cap. 2. regul. iii. that the physician should not enter into too much familiarity with the surgeon. But unless the plan I have advised is pursued, surely no men living should be more open to each other in communicating their intentions, that they may both proceed upon the same plan; for without there is a perfect union in opinion, the patient is most likely to be a sufferer, where each takes only the management of part of the disease.

acquaint-

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acquaintance with the subject might have produced a more favourable termination of the disease. We must, therefore, repeat what has been said in other words, that every physician, who prescribes in external disorders, ought to be a good surgeon; and that every surgeon ought to be a good physician; that the nature of external diseases can only be learned by constantly seeing, and examining them thoroughly; and that the method of cure will not be understood but by curing them, and by strictly observing the alterations which happen from disease, or nature, and the effects of medicine; that we may determine how far particular remedies are assisting in the cure. The experience of other men will not supply the want of our own observation; for even facts must be tried, and pass through our own thoughts and experience, before they can be of much

The methods of acquiring proper knowledge in chirurgical cases enumerated.

use to us. Sir William Temple observes*,
“ though a man may grow learned by
“ other men’s thoughts, yet it is from his
“ own thoughts as well as experience that
“ he will grow wise.”

Should physicians think the knowledge of dressing ulcers unnecessary, they will find themselves mistaken; it leads to a more familiar acquaintance with the disease, and the very manner of dressing with the same remedy will often either forward or prevent a cure. For instance, in many habits the epulotic cerate, though properly prepared, spread thick, continues the running of sores; whereas when it is spread thin upon lint, and suffered to dry before it is used, it frequently heals them. Digestives are often necessary to promote cicatrization, but sometimes their being spread thick, and sometimes thin, is required; otherwise the cure will not ad-

* On Health and Long Life, p. 267.

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vance. Different degrees of pressure produce different effects; one kind prevents inflammation, another occasions it; one promotes digestion, another suppresses it; one occasions pain, another eases it, &c. If a roller is not properly wrapped up, it cannot be well applied, and the patient will receive no benefit where the cure depends on bandage. Nor are innumerable other instances wanting to shew, that whatever remedies are beneficial in sores, become so by a right use of them. If a physician cannot point out where the fault lies, when the cure does not advance, he may prescribe to eternity without success, if his assistant happens not to be an adept in dressing of sores, and has not attended to the different effects that may be produced by the same remedy differently applied: unless, indeed, in those cases which sometimes happen, where nature will effect

The manner of dressing under different circumstances necessary to be known to the physician who undertakes to prescribe in external diseases.

G 3

a cure,

a cure, in opposition to every blunder that can be committed!

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Hoffman in one of his rules says, "A physician ought not to perform any common operation; such as making a future, applying a plaister, &c. because it is beneath his dignity." It is said some modern physicians value themselves upon their ignorance in surgery, for the same reasons. But can such consummate pride support the dignity of any profession? Did Hippocrates think these offices beneath his dignity, which was in knowledge, and not in outward pomp; and does not the dignity of a physician consist in humanity, honesty, and a thorough acquaintance with the science he professes*? Surely, affording relief to the distressed by any means, is an act of humanity; and in what manner acts of humanity can lessen

* Hippocrates says, he ought to be an honest, diligent, ingenuous man.

a man's dignity, I am at a loss to conceive: Celsus esteemed him most, whose knowledge was most extensive. I am of opinion with Dr. Gregory, that it is ridiculous in a physician to think any attentions, or any duties, below his dignity, which can contribute to the relief of his patient. I am persuaded this mistaken pride can only be an air of pomposity in some few men, who wish to appear great, with confessedly limited understandings.

Besides, is not medical surgery equally noble with any other branch of medicine, and more certainly useful as its effects are more evident? In internal diseases it is often hard to say, whether the disease is cured by medicine or by nature, in opposition to bad practice. But in external diseases the effects of proper treatment are obvious, and, being easily understood, have not been so greatly admired as those things which are covered with darkness. Nevertheless,

Surgery
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with any
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medicine,
and evi-
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useful.

Why not
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treatment
of obscure
diseases.

A friendly hand-
maid to
nature,
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theless, the method of curing external diseases, even by external remedies, is a friendly hand-maid to nature. It does not derogate from the art itself, that those advantages have not been derived from it that might have been ; or, that it has been practised by barbers and illiterate men. Every branch of medicine has had the same misfortune, of falling into the hands of those who did not understand it.

Physicians allow
that surgery is a
master-key to the
study of
physic.

Physicians of the first eminence agree, that the knowledge and cure of external diseases is a master-key to the study and practice of medicine. Boerhaave, and his very learned commentator the Baron Van Swieten*, endeavoured to inculcate this opinion in the minds of their pupils, and taught what belonged to external maladies as a clue to medical knowledge, not to be obtained in any other department of medicine ; it being the best method of learning,

* Com. sec. 144.

to pass from those things which are easy to comprehend, to the more difficult: and external disorders being most obvious to the senses, and most readily understood, easily lead us to a knowledge of the same kind of diseases, when seated inwardly.

“ We can much more evidently understand
“ external inflammations, and their various
“ ways of terminating, than those seated
“ internally. How much light we receive
“ about the nature of obscure diseases of
“ the head, from a knowledge of wounds
“ of that part! And the same is true of
“ many other complaints.” “ We may
“ justly lay it down (says he) as an axiom,
“ that internal diseases exactly correspond
“ with such as are external; *and that no-*
“ *thing regular or just can either be per-*
“ *formed or taught in the practice of physic,*
“ *unless the external diseases appertaining to*
“ *surgery be first thoroughly considered.”*

The Baron has not omitted to lay before

us

INTRODUCTION.

us proper analogies on this occasion*; and of the same opinion are numberless able physicians of our own country†.

Hippocrates of this opinion.

Hippocrates formed many of his notions, and much of his practice, in the cure of internal diseases, from what he observed in those seated externally. In particular, he rationally taught the nature and cure of pleurifies, peripneumonies, and the like, from wounds of the breast. When fores were over-loaded with a flux of humours, purges were given to unload the habit, and make a derivation from the affected part; and the effects in these cases naturally extended the use of such remedies in every kind of inflammation and plethora. Is not the analogy of external and internal diseases obvious? A man is seized with violent pain in the abdomen, accompanied with a hard full pulse, a fever, costive-

* Sect. 557.

† See Dr. Barry, Dr. Miller, &c.

ness,

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ness, &c. whence we conclude, that the affected parts are inflamed. If the pain gradually decreases, a recovery is foretold; but if the patient enjoys sudden ease with a weak low pulse, we judge that a mortification is come on, and that death is at hand: and whence do we learn this knowledge, but from external inflammation, and the symptoms attending its different terminations? A local inflammation is attended, more or less with a fever, and a quick pulse. In a *tetanus** from an uninflamed sore, the pulse is quiet and no fever appears; which leads us to distinguish, upon certain grounds, betwixt inflammatory and spasmodic diseases, when seated inwardly; and what remedies are to be chosen for the cure. If a man is seized with a pain in his stomach or bowels, has a quick pulse and a fever, we immediately know, upon touching the patient, that his disease arises

Instances.

* See Diff. on the Symp. of the Nerves.

from

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from inflammation, and that the antiphlogistic treatment, in a greater or less degree, in proportion to the symptoms, must be pursued. On the contrary, if his skin is temperate, and no symptoms of fever appear, it is clear the pain is owing to flatulency, spasm, or some indolent obstruction unattended with inflammation* ; accordingly antispasmodics, warm purges, the essential oils, or deobstruents, &c. are given with success. The same may be said of pain in the side : and in a fit of the gravel we can never proceed regularly, unless we attend to these particulars. If the vomiting, nervous colic, and pain in the back and groin, are accompanied with a fever, inflammation is present, and bleeding, with the cooling plan, take place ; but if the pulse is quiet and no fever appears, tincture of sena, joined with spirit of nitre, opium, and marshmallow tea, tur-

* See Treatise on Inflamm, in general.

pentine clysters, and such kind of remedies afford more immediate relief. Lacerated wounds of the brain are often, if not always, accompanied with a soft, open, unaffected pulse; whereas when the *dura* and *pia mater* are inflamed in a state of tension, a fever and a quick serrated pulse are the consequence. We may conclude from hence, that in deep-seated pains in the head, and in comatous fevers with a good pulse, attended with deliriousness, rapid loss of appetite and strength, sleeplessness, quickness of breathing, and thirst; the disease is seated in the substance of the brain: and that the membranes of the brain are inflamed when the pulse is serrated and quick, and the symptoms of *phrenitis* appear. In injuries of the brain, have we not *ocular demonstration*, that an *hemiplegia* on the opposite side is a consequence. The effect of long-continued inflammation upon the outward mem-

membranes, the surgeon *sees* to be unavoidable suppuration ; which points out the necessity of a speedy removal of the disease when the inward membranes are inflamed, to avoid this consequence, which in such a situation will often prove fatal. In inflammation of the lungs and pleura, where the disease often terminates by expectoration, does not the practice of surgery clearly instruct when to use evacuations, and when to let them alone ? While a wound is in a state of inflammation, bleeding, antiphlogistics, cooling purges, and the like, are proper ; but when digestion comes on, and we see the inflammation is abated, such remedies are no longer necessary : and does not this hold good in the inward disorders of which we were speaking ? For antiphlogistics are proper till expectoration comes on ; they then become improper, and * inward di-

* We do not mean by digestives the common heating remedies ; but those things, which by an emollient quality promote a discharge.

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gestives finish the cure. When the abdominal viscera are inflamed, is not the cure accomplished by the very same means which remove external inflammation by discussion? It has long been known that the matter in abscesses is sometimes suddenly taken up by the absorbents, and carried safely out of the body; which has induced surgeons *, under particular circumstances, to promote this absorption by brisk purging in ripe abscesses, and to cure their patient without an ensuing ulcer. Does not the success of this practice point out that there may be some hope of relieving abscesses in the head, thorax, or abdomen, by this treatment, where an operation for various reasons cannot sometimes take place?

In short, the same kind of diseases happen to the inside as to the outside of the body. It is allowed a phrenitis is a phleg-

* Dease's Surgery.

The same kind of diseases happen to the inside as the outside of the body.

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INTRODUCTION.

mon or erysipelas of the brain, or its membranes; a pleurisy, a phlegmon or erysipelas of the pleura; and a peripneumony, a phlegmon or erysipelas of the lungs. When the liver and spleen, stomach or intestines, &c. are inflamed, they must be affected in the same manner; and though some peculiar symptoms may arise from the structure and situation of these different parts, yet the inflammation in each of them requires similar treatment with external inflammation; and, though it affects different organs, ought to be considered as one kind of disease.

Scirrhi of the liver and spleen, or other internal glands, are of the same nature with scirrhi in glands seated externally; inward ulcers are of the same kind with external ulcers: and how is it possible to treat the former with propriety, unless we are previously instructed in the nature of the latter? A phthisis arises from an ulcer

ulcer in the lungs, and this ulcer from a tubercle. It is well known that these tubercles, and the swelled glands in the mesentery, which occasion an atrophy, are of the same nature with those formed in the necks of scrophulous people: and surely by seeing the progress of the external disease, and what effect medicines produce in the method of cure, we must be fully instructed in its consequences when seated inwardly. For it is not material whether matter is absorbed from an external, or internal ulcer; as a colliquative or hectic fever, according to its nature and degree of virulence, will be the consequence: and in every ulcer, the same kind of reasoning holds good. Nor is the analogy of external and internal disorders confined to local complaints; for we have better information in regard to the nature and action of contagious *miasmata* from external disorders, than is to be gathered from any other quarter.

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In inoculation we are led to conclude, that contagious *miasmata* are equally subtile with the scent of a rose; because we discover, that even a variolous atom produces the small-pox. By the most active kind of putrid matter being absorbed from sores, we are taught what effects putrid *miasmata* will produce in the body, in whatever manner they are received; and what methods are most likely to correct their mischievous effects. The ichor arising from corrupted blood, or putrid flesh, is a most active poison. We see it corrode and inflame the parts with which it comes in contact; and being absorbed, it irritates the nerves, brings on a fever, weakens, or destroys nervous energy, dissolves the crasis of the blood, and, if not prevented, a total corruption follows, as the progress of gun-shot and other contused wounds has so often evinced. The cure of these accidents has surely thrown great light on the use

use of antiseptics in putrid fevers; and by supposing putrid matter to be more active and volatile than that described, we shall not be at a loss to account for the gaol-fever, and other distempers of the same kind.

A poisoned arrow evinces how small a quantity of matter will have an immediate and deadly influence, by acting upon the nerves. And from this extreme sedative power a field of inquiry presents itself, in which we may be led to a curious investigation of the power of different sedatives. The *miasmata* occasioning the fore-throat fever, which lately prevailed in this place*, apparently destroyed the patient by their sedative and deleterious property, without one symptom of putridity attending: and I have several times met with a fever without either efflorescence, or fore-throat, in which those who died had every symp-

* See Treatise on Erysipelas.

tion of nervous energy being destroyed; and those who recovered were enabled by wine, or other cordials, to struggle through the disease. Sores also teach the difference betwixt inflammatory and spasmodic irritability; and set us upon proper ground to see in their right light the whole train of nervous diseases, and their method of cure. Air, diet, water, and situation, manifest their effects remarkably in sores; and, if we except mental diseases, there are none that I know of, which may not be illustrated by one part of medical surgery or other: and an ulcer even discovers to us, how far these will affect the body. It has long been the opinion, to the destruction of thousands, that a fever is an effort of nature; and so long as we reason from conjecture, much may be said in favour of this axiom, cunningly invented by Asclepiades, to support a bad practice. But surgery discovers its fallacy; for supposing

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an ulcer to be in the most healthful state, discharging good matter, and filled with ruddy granulations of new flesh; if a fever by any accident invades the patient, the ulcer becomes dry, or discharges a gleet instead of good matter; the fibres become pale and glossy, and evince that every effort of nature is suppressed while the fever exists. Nor can any thing be clearer than that fever interrupts nature, because she resumes her office of restoring the ulcer to a healthful state as soon as it disappears.

Dr. Freind* says, "If the effects of outward applications were properly adjusted and explained, nothing would give greater light into the virtues and operations of internal medicines:" and this, experience might daily evince. We have mentioned that a balsam composed of pitch, &c. has a powerful sedative pro-

The effects of outward applications throw great light upon the use of internal medicines.

* Hist. of Med. vol. i. p. 73.

perty in particular sores ; and a man, troubled with a violent nervous asthma, received the greatest relief by accidentally taking some of this remedy. Knowing its power by external application, we afterwards recommended its use occasionally, and, in consequence, the man enjoyed more ease for several years, during the remainder of his life, than he had for a long time experienced. Hence we see in what cases, and in what manner tar-water proved serviceable ; but as the internal use of it could not so clearly point out its mode of action, it was indiscriminately used in all sorts of disorders : the consequence was, that from its frequent failure of success, it sunk into disuse. Myrrh (besides its antiseptic property) has a power of allaying irritability, when sprinkled in sores unattended with inflammation ; and does not this point out to us how it comes to pass, that nervous coughs, under the same predicament, are
so

so certainly and effectually cured or relieved by it? Balsam of Peru is a sedative in fores unattended with heat or inflammation; but where heat or inflammation prevails, it occasions violent pain: if, therefore, it was given in an inflammation of the bowels, would not it produce the same effect? Whereas in the nervous colic, or spasms of the viscera, it is often attended with the most desirable success. Essential oils take off irritability in fores under the same predicament; and, in all likelihood, produce their good effects by this means upon the nerves of the *primæ viæ*, when mixed with purges, or when taken inwardly for pains in the stomach and bowels, nervous or chronic rheumatism, &c. Oil of turpentine has often been known to ease pain unattended with inflammation, when outwardly applied; and it is probably owing to this sedative power, that turpentine clysters give such immediate re-

lief in fits of the gravel, where no inflammatory symptoms appear; whereas all sedatives having an irritating property, it increases the inflammation of wounds: and would it not in like manner increase nephritic symptoms, when accompanied with heat, taken inwardly? Rhubarb gently increases the flux in sores, cleanses them, and renders them less irritable; and are not its salutary effects in disorders of the bowels owing to these properties? Bark, applied to ulcers, corrects putrid acrimony, strengthens weakened fibres, and restores them to natural sensation when feeling is unnaturally acute: and it is probably owing to all, or some of these qualities, that so many good effects are experienced from its use. It is well known, the *siphylis* is corrected in sores by mercury; and is not the same remedy an antidote to the venereal virus when taken inwardly?

In this manner we might go on through the whole materia medica, shewing that the outward effects of remedies lead to the internal use of them : and the fleshy fibres being exposed, frequently discover to us what effects medicines produce in the body. Suppose an ulcer to be in a healthy healing state, and an ounce of salts to be given : inflammation about the fore soon follows, the discharge, which becomes thinner or more watery, is increased, and by looking upon the fibres with a glass we see they are in a crude and ragged state. From this instance we learn, that the effects of such kind of purges are not confined to the intestines, to making an evacuation of serum, or to the occasioning a higher excitement of nervous energy ; but they traverse the innermost recesses of the body, irritate every order of vessels, promote a circulation through them, and thus render them pervious. It is from these effects
that

that purges are so very serviceable in bruises ; and we find out how it comes to pass, when a discharge from the urethra (for instance) is suppressed, and brings on a swelling in the neighbouring parts ; that relief is procured by such remedies. We plainly enough see by the state of the fibres, what kind of purges extend their effects farther than the alimentary canal, what kind confine their action to this bowel, and the manner of giving purges to make them answer different purposes. The action of different kinds of sudorifics is pointed out in sores ; and it is evident, from their being fretted, that though emetics are prevented by opium from acting on the nerves of the *primæ viæ*, so as to occasion vomiting, that they irritate the whole system, and thus evacuate by perspiration. Indeed, the visible effect of vomits and purges in sores seems to prove, that whatever irritates the *primæ viæ*, irritates the whole system :
and

and would any one have so clearly known the deobstruent powers of emetics, that they promote absorption, and extend their effects to the remotest parts of the body, had we not seen them reduce swellings in the extremities, and in several of the external glands? Mercury is known to pass the minutest vessels, by its being discharged upon plaisters, wherever the cuticle is removed; but not in globules as some have represented. A man had occasion to take mercury on account of a pain and eruption of long standing on his head. I ordered him four grains of quicksilver, made into pills with starch and water, twice a day; and a perpetual blister was at the same time applied to that part where the pain was greatest. He took half an ounce of purging salts once a week, but in other respects lived in common with his associates; yet, in less than a month, the inside of the dressings were daily covered with a

blueish

blueish smut; and knowing that even calomel returns to its pristine state in the stomach*, it appeared evident that the alteration the mercury had undergone was owing to its passing the circulation. The fluids with which it mixed in its passage were also probably altered, and the mode in which it was discharged shews that it enters the smallest vessels. Besides, when applied to ulcers it irritates; and we have ocular demonstration of its thinning the juices in particular habits of body. A woman, fifty years of age, had a putrid ulcer upon her leg. Her surgeon gave her mercury, upon which it spread, and became more putrid; but upon bark being taken, by other advice, it grew cleaner, and put on a more healthful appearance. Unluckily, however, mercury was again administered; the ulcer spread again, and the acrimony of the fluids, which drained

* See Differ. on the Nerves.

into

into the fore, was so very great, that they destroyed all the parts with which they came in contact. The bones were laid bare, the tendons were all dissolved into rags, and the ligaments of the ankle-joint, being in the same state, could no longer hold it together; and all this under an attenuated state of blood! I then first saw her, applied antiseptic dressings, and gave her the bark with elixir of vitriol, which in time restored her to such a state, that she bore the loss of her leg, and recovered her health. Do not these facts reflect light on the use and abuse of this excellent mineral *, at the same time, that they point out the different effects of bark and mercury?

The effects upon the solids and fluids are also plainly seen in an ulcer, when a variety of other medicines are given. A woman, about fifty years of age, of a leu-

* See Venereal Ulcer.

cophleg-

cophlegmatic habit, had an ulcer upon her leg which discharged clear water; and the fibres looked exceeding pale and inactive. She was ordered to take steel-wine twice a day, in chamomile tea, and her leg was dressed with dry lint, kept on by a soft plaister; by this simple method the invigorating power of the steel was clearly perceived, as new granulations and good matter shortly appeared, and she recovered without farther trouble. As we go on, we shall have occasion to mention many other instances, where surgery gives ocular demonstration of the internal effects of medicines; but these are sufficient for our purpose. And what can be more necessary in the practice of physic than a true knowledge of the nature of diseases, and of the virtues and operations of medicines?

However, this is not all the knowledge external diseases afford to medicine; for they have set before us some parts of the animal

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III

animal œconomy in its true light. Injuries which destroy the brain, or evacuate all the blood from the body, teach us, that the vital principle resides in the blood and brain; that neither of them alone can preserve life; and consequently, that health is maintained by a regular action of both in a sound body. Wounds or ruptures of the heart shew its importance to life, and a wound in the thoracic duct, upon dissection, has, according to Lower, *De Corde**, demonstrated the passage of the chyle to the blood. Has not the history of a wound in the gall-bladder†, taught us the office of the bile; and shewn, that fluids extravasated into the cavity of the abdomen, find a passage immediately into the urinary bladder? Tumors in the ducts leading to,

* P. 154. edit. 4to. See also Van Sw. Com. vol. ii. p. 116.

† Philos. Transf. N^o. 414. p. 341; or, Miles's Abrid. vol. ii. p. 212.

OR

or coming from, the liver, not only instruct us in the use of this gland, but the nature of one kind of jaundice, that the liver is the seat of this complaint: and we have sometimes, in external diseases, ocular demonstration of the effects which bile produces when it gets into the blood. A man had an ulcer in his groin, which was cured, and some time afterwards he was seized with the jaundice, became exceeding yellow, the ulcer broke out again, and discharged a yellow matter; but upon the jaundice being removed, the discharge soon altered its colour, and the patient was cured without any farther trouble: from whence we may infer, that the doctrine of those who assert, that there cannot be a *materia morbi* in diseases, is false; and that the fluids, while circulating in the blood-vessels, may possess matter capable of occasioning eruptions, ulcers, and a variety of other complaints. We learn, moreover, that

that great acrimony may exist in the blood, without occasioning much injury, if it meets with no obstruction; but if intercepted in its passage, it may destroy the vessels in which it is confined. In the case just recited, the vessels of the cicatrix probably did not give a free passage to the juices loaded with bile, wherefore it destroyed them: and does not this lead us to imagine, that, in some instances, active deobstruents, given with a view to remove obstructions of the viscera, may produce a similar effect, and destroy the patient? On the other hand, the dissolution of the cicatrix discovers to us how it comes to pass, that chlorotic girls are so often cured by the coming on of a jaundice: for it is easy to conceive, that the bile, by its irritating and dissolving property, may render the whole state of the vessels pervious, and thus restore health; and that similar deobstruents may frequently be given with advantage.

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Did not the passage of the venereal virus from the urethra to the glands in the groin, lead Dr. Hunter to adopt and support the opinion of the lymphatics being an absorbent system*? And it is well known, that the absorption of matter from ulcers, and the inoculation of the small-pox, have established the truth of this doctrine. An emphysema following a fractured rib, in part demonstrates the structure of the cellular membrane. The incarnation of wounds gives great light into the nature of animal fibres, their diseases, and the means of restoring them to health. Fractures of the bones, accompanied with a wound, and loss of substance, point out the mode of ossification; and, indeed, there is

* It was truly, I think, a discovery, because what Hoffman (*Med. Ret. System*, lib. i. sec. 2. cap. 3.) and others had advanced, was no ways understood till after the Doctor had wrote or read lectures upon the subject. It is said, he took the hint from Freke, on the *Art of Healing*, p. 199.

scarcely

scarcely any thing which passes in the body, either in sickness or in health, which external disorders or accidents do not, if attended to, more or less explain. Surely then, those surgeons are highly blameable, who overlook such opportunities of information ! The objects before them are the most obvious, and plain road to truth ; and if, when instructed in anatomy, physiology, and medicine, they have the happiness of being spurred on by a genius capable of discerning and pursuing the hints of nature, they cannot well fail of being useful to society. This is the direct road to useful knowledge ; and the mind, when thus assisted, stands in need only of exercise to increase its strength, and to extend its powers to any purpose for which it may be wanted.

Indeed, those whose minds are mechanically actuated by instruction, are often fired with the study of medicine ; they seldom

Why the fertile genius often fails in advancing science.

fail to make themselves acquainted with prevailing opinions, and are capable of hashing them up occasionally into different forms. Even the fertile genius, who scorns to think or act like other men, and often delights and astonishes us with ingenious conceits, if he does not attend to the light which nature offers, his wild theory oftener detracts from, than adds any thing to, the store of medical knowledge; because his opinion is the brat of invention, instead of being the legitimate offspring of nature. Whereas an observer of nature thinks not of *inventing* opinions, but of unveiling the sources of all true knowledge.

That our meaning may not be misconstrued, and more clearly to evince the truth of the doctrine advanced, we will give a few *examples* out of many that might be collected, in proof of the necessity of making the practice of medical surgery a part
of

of the education of those, who intend to prescribe in external diseases. Without taking this step, we shall see how impossible it will be for any one, though his classical and medical learning be *otherwise* great, to exert every advantage the art affords: and we have not any doubt, but these hints will be well received by ingenuous men, whose understanding the lust of power and wealth has not misguided; who know that it is a proper application of remedies which cures diseases; and whose good sense directs them to reject all reasoning which is not founded upon evident facts. The surgeon also will be aware of the want of a regular education in his art, of the necessity of supplying it by industry, and learning the private practice of skilful men.

EXAM.

EXAMPLE I.

A young gentleman, after a more liberal education than common, was bred an apothecary; but being afterwards desirous of qualifying himself for the practice of surgery, attended an hospital, and other places of instruction, more than a year in London; and then spent two winters in the medical schools of Edinburgh. At both these places he took uncommon pains, was a man of exceeding good sense, very ready in discoursing sensibly upon any part of his profession; and the Edinburgh theory of diseases, and their cure, flowed spontaneously from his tongue. Yet being called with me to a case in surgery, he fairly confessed he had not learned his business: for says he, "Though I can perform operations very well, and manage recent wounds, &c. where nature, I am convinced, will overcome many obstacles to a cure; yet in *stubborn chronic* cases,

" I am

“I am always at a loss.” I saw he had a slovenly way of dressing his patient, without any intention of assisting nature by his manner of application ; and that he was a novice in the proper use of bandage. He was told, that his want of skill arose from not being properly trained up *to the art* of surgery ; and, that he had been more attentive to the theoretical than to the practical part of his profession. His good sense readily took the hint with advantage, and we hope, others in the same predicament will follow so commendable an example.

EXAMPLE II.

A servant maid scalded her ankle, and was put under the care of a young gentleman, who had not been regularly educated in surgery. Upon the sore in a little time becoming inflamed and painful, opiates were given, and a bread poultice and fomentations were applied. The pain, how-

ever, increased, the leg swelled much, the ulcer discharged a sharp ichor, became very foul, and its lips were amazingly thickened and inflamed. Internal medicines of various kinds had no good effect; and after the poor girl had undergone five months excruciating pain, with the mortification of swallowing abundance of drugs, at which her stomach recoiled, and had spent all her money, she luckily fell into the hands of a surgeon of character, who gave me this account, in a conversation on the necessity of surgeons being regularly initiated into the profession.

He concluded from the aspect of the fore, and the touch of the adjacent parts, that the whole mischief arose from their being over-relaxed, and the small vessels distended with fluids, which, by stagnating, were become acrid; and that a cure would be effected by taking off tension, and promoting a regular discharge. This he accomplished

complished by applying a very mild digestive, and strengtheners ; for upon the use of them she became easy, the matter good, and a complete recovery soon followed. Hence we see, that trivial causes may bring on troublesome disorders, when proper steps are not taken in the beginning of the cure.

EXAMPLE III.

An old man received a small wound upon his leg, which was neglected for some days, and then filled with precipitate. Pain, restless nights, inflammation, and an eschar, were the consequences ; wherefore yellow basilicon, softened with oil of turpentine, was applied, and a mercurial solution was given, which still increased the symptoms ; for the ulcer enlarged under an inflamed state, and the eschar daily increased : nevertheless the irritating dressings were still used, with the addition of a fomentation, a poultice

poultice in which was a considerable quantity of the extract of lead, and bark supplied the place of mercury. But the disease still growing worse, fixed air was thought on, and a poultice, in a state of fermentation, was applied over the other dressings. However, this did not stop the progress of the disease; and, therefore, bark in powder was sprinkled upon the inflamed parts, and a carrot poultice was afterwards used, with no better success; so that at the end of three weeks or a month it was thought adviseable to pursue a different method. The man appeared to be of a very irritable habit, of a hot temperament of body; and it was imagined, that the turpentine dressings, and fomenting, had occasioned all the mischief. This conclusion was justified, for when a mild sedative digestive was applied, and a *cooling ointment* covered the inflamed parts, a sudden alteration for the better appeared, and a happy
termi-

termination of the disease was the consequence.

Various methods of cure for corrosive ulcers have long been known : whenever, therefore, we see men prefer novelty in medicine to common sense ; give up a successful established practice, and tamper with remedies that have started from some new system ; we may conclude, either that they do not know what they are about, from not being properly initiated into their profession ; or, that they affect to despise the established usages of their art, in hopes of exciting admiration for superior abilities. For though improvement, conducted upon clear facts, is certainly of the highest importance to society ; yet nothing, perhaps, has done more mischief in the art of healing than the hasty catching at undigested novelty ; for, like an *ignis fatuus*, it often misleads and leaves us in the dark.

EXAMPLE

EXAMPLE IV.

A healthy young gentleman had the misfortune to make a slight wound on the upper part of his foot, in skating, and some family-salve was used on the occasion. Instead of healing, the sore inflamed, and discharged an ichor; upon which a surgeon was sent for, under whose care the flux, &c. increased. He tried various means to conquer the malady, and, after being some time foiled in his attempts, he laid the blame upon the peccancy of the humours, and desired the assistance of a physician; and, accordingly a physician, educated many years in one of the first medical schools in Europe, was called in.

The doctor viewed the foot, and prescribed; but the state of the sore proved, that his medicines did not alter the disease. He varied his prescriptions as disappointment and *imagination* directed him; and, during
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the space of three months, while the patient was confined to the house under his care, he ransacked the whole *materia medica* for combatants to subdue an ill state of the juices. Sometimes he attempted to scour them entirely out of the premises, by repeated purging; at other times he dealt more friendly, by sending in remedies to alter their temper; nor did he omit an attempt to starve out the imaginary enemy, by keeping the patient under low diet. Disappointed of relief, enervated, and tired with the disagreeable passage of a tribe of nauseous drugs through his stomach; the patient desired the assistance of another person, who happened to see this affair in a different light from his predecessors, and found the juices in good humour enough, though reproached with virulence and obstinacy.

The appearance of the patient's skin at once shewed it to be of that kind which is
very

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very irritable. Being asked whether even simple plaisters, applied at any time, did not raise small blisters which discharged an ichor, he answered in the affirmative; and upon tracing the matter throughout, it seemed evident the whole mischief had arisen from, and was continued by, the applications in this habit irritating and inviting a flux of lymph to the affected part; in the same manner as blistering ointments, in less irritable habits, produce a perpetual blister.

The foot was now much swelled, somewhat excoriated, and become more irritable from the long-continued flux brought upon it, and yet the doctor, was again for prescribing calomel, &c. But as purges always increase the discharge and irritability of sores, the surgeon, unwilling to be interrupted, desired a truce from hostilities, that he might judge from the effects of a few dressings, and an alteration in the diet
of

of the patient, whether internal medicines were necessary. Accordingly by the use of a neutralized ointment, which both lessened irritability, and removed obstruction, and the patient living upon a more generous diet, he was soon cured, without the assistance of internal medicines; except a little extract of bark and gum pills, given to relieve some hypochondriacal symptoms, brought on by the discipline he had unnecessarily undergone, and which could not have happened had the prescriber been an adept, from practice, in the cure of external diseases. If the physician had been conversant in dressing of sores, he would at once have seen the cause of intractability in this accident. His, viewing the foot, therefore, was only a matter of form, from whence it is plain he derived no advantage.

Would not the physician, if he had been suffered to continue purging the patient
fre-

frequently, have prevented a cure in opposition to all the surgeon could have done? And could internal remedies have done any service, while irritating dressings were applied?

EXAMPLE V.

A gentleman had a large ulcer upon his leg, which was dressed with digestives compounded of turpentine, rosin, &c. The matter discharged was ichorous, and corroded the ends of the fibres, so that they appeared curdled; while the edges of the sore were a little inflamed. The ulcer, which was very sensible to the touch, brought on an uneasy sensation over the whole body. The patient could not sleep; and restless nights, with weary days, for several months, destroyed his health, and reduced him to an exceeding weak state.

His physician, a man of liberal education, and much experience, ordered him
opium,

opium, and the bark in considerable doses, but without affording any sort of relief; when being almost worn out with watching and fatigue, another physician, who practised both medicine and surgery, was called to give his assistance.

Upon hearing what had been done, he was aware that the parts had been constantly irritated by the dressings; and experience had taught him, that native balsams, divested nearly of their heating quality, were in this case proper sedatives. Under this idea he advised the sore to be dressed with the balsam made of pitch, &c. and the edges to be afterwards covered with a neutralized ointment. Relief from pain was followed by sleep in a few hours, and while he took bark and spirit of salt, under a state of ease, health was restored to the body.

How could a physician form any true judgment from the appearance of a sore,

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who

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who had never examined foers critically? He did not suspect the dressings, because they were much milder than the digestives of the London Dispensatory; how then could he have advised a proper sedative without experience, unless by accident? For had the fore been differently circumstanced, a different application must have been chosen for the purpose.

EXAMPLE VI.

A corpulent farmer took his daughter behind him to a race, and, to avoid accidents, rode into a corner on the outside of the course. A gentleman, upon a vicious horse, rode into the same place from the same motive; but unluckily as soon as he came near the other horse, the farmer received a violent kick on the outside of his leg, which made a large lacerated wound. The surgeon, who had been bred an apothecary, applied digestives, and an emollient

emollient poultice, under which treatment, long continued, the wound degenerated into a fordid ulcer, and in time his health began to be injured. The patient lost his flesh, his complexion became fallow, he had a hectic fever, and frequent returns of an erysipelas on his leg, which all together alarmed the family, and induced them to think of farther assistance. The surgeon recommended a physician, who was incapable of reducing the ulcer into a healing state, though the patient remained under his care near a year. The frequent returns of the erysipelas, rigor, and fever, were said to be beneficial, by keeping off other fevers; that the stoppage of the discharge might occasion his death; and yet, with all these pretended advantages he became greatly emaciated, and daily declined in health. Upon this, he applied to a third person, to whom he gave a narrative of all that had been done; he said he was

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in perfect health at the time of the accident, and it was concluded, that the poultices, by over-relaxing the skin, *membrana adiposa*, &c. had rendered their vessels incapable of carrying on the circulation regularly ; that hence a stagnation and acrimony in the juices had ensued ; and that the hectic fever and erysipelas were all owing to an absorption of matter from the fore ; for that the leg being healed under proper treatment, would re-establish his health, provided the *viscera* were not injured. Happily this was not the case, for he perfectly recovered upon the fore being cured.

The local management of the leg was out of the physician's line ; he could not therefore cure the patient, because this depended upon healing the ulcer. He might no doubt, assist in abating inflammation when the erysipelas came on, by prescribing cooling remedies ; but this was
only

only a temporary relief, which would, for the most part, have been accomplished by emollients, and promoting a plentiful discharge from the sore.

E X A M P L E VII.

When Lord Chesterfield's * legs swelled violently after a fever, neither Mead, Broxholme, nor Arburthnot, did him the least good; but, on the contrary, increased the swelling by applying poultices and emollients. In this condition he continued near six months; till finding that the doctors could do him no good, he resolved to consult Mr. Palmer, the most eminent surgeon of St. Thomas's Hospital. This gentleman told him that the physicians had pursued a very wrong method, as the swelling of his legs proceeded from a relaxation and weakness of the cutaneous vessels; and that he must apply strengtheners in-

* Letter 370.

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stead of emollients. Accordingly he ordered his legs to be put up to the knees every morning in hot brine*, in which meat had been salted. In three weeks time his Lordship was well, and he was hence led to conclude, that a right method of proceeding must be deduced from *a view of the parts*, to understand the manner in which they are affected. It will not be thought strange, that such eminent physicians should persist six months together in a practice which suffered the disease to increase, when we reflect upon the partiality of mankind to their own opinions, even when they reason from conjecture!

Conjectural reasoning fallacious.

Whoever takes a view of what has been done by human reason, unsupported by evident facts, will find, if we may judge

* The intention in this instance was no doubt right; but we do not think his practice the most eligible, though it shews that any method founded in experience is preferable to that which is derived from the reasoning only, of the most ingenious men.

from

from the fate of those theories which have originated in speculation, that there is not any thing more fallacious; and that it is always to be mistrusted when thus employed. On the contrary, when reason is founded in nature, it certainly is one of the greatest blessings bestowed upon mankind; the proper office of theory not being to invent principles, but to explain and extend facts into use, without losing sight of them. It is very certain, if the physicians concerned in Lord Chesterfield's case, had, like Mr. Palmer, been trained up practically to the cure of swellings of the legs, and had reasoned from facts, they would have known better how to have treated his complaint: and if surgeons neglect to extend their views farther than performing operations, they will be equally incapable of assisting those who apply to them for relief.

Reason
founded
in nature
useful.

The bu-
siness of
reasoning.

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RECAPITULATION.

Conclu-
sion.

Upon the whole, it appears that no person possesses real knowledge, in any part of medicine, beyond what is acquired by observation and sufficient experience; that though dividing the practice of medicine into shares may be convenient for individuals, yet there is no studying this science thoroughly, but upon the plan of Hippocrates, in a complete union of its branches. It may be compared to a circle, which will not admit of any division of its parts, without injury; and accordingly Celsus asserted, that all the parts of medicine are so connected, that no one part can be separated from the whole: all which will hereafter more fully appear.

POST-

POSTSCRIPT.

MIDWIFERY is another branch of surgery, in which the physician and operator ought to unite in the same man ; it being impossible to treat the disorders of pregnant and lying-in women without a perfect union in these offices. Without learning the practice of midwifery experimentally, and being able to distinguish properly regarding the state of the womb, and the alterations women undergo on this occasion, by due inquiry, all ideas will be very imperfect, and prescriptions upon general knowledge will be more liable to do harm than good. On the other hand, if the operator has not made himself thoroughly acquainted with all a physician ought to know, the life of his patient may be in jeopardy, whenever he takes upon himself the management of any disorder which may happen after delivery.

Dr.

Dr. Mead *, indeed, seems not to think a knowledge in the obstetric art introductory to the office of prescribing in tedious births; for he supposes even those who are skilful in this branch, unacquainted with the means of mitigating or taking off false pains resembling those of the colic: and I have heard of others, though they never learned or practised midwifery, who think they ought to have the direction in all tedious labours, and that the *accoucheur* has nothing to do in cross-births but to receive the child. Dr. Shaw † imagined he was capable of giving directions in difficult births, when he wrote upon that subject; and yet it is clear he did not well understand it. We cannot have a better instance to shew the

* *Monita & Præcept. Med.*

† We must not omit, that the doctor, many years afterwards, acknowledged with great candour, his temerity in giving a *Practice of Physic*, before he could have had any competent experience. See preface to Dr. Heister's *Observations*.

impropriety of giving directions, where practice has not made a man perfect in the business, than this writer's account of a natural delivery, and of the means which should be taken to assist it !

Now the use of opium in false pains had been known long before Dr. Mead's time, and practitioners in this art had other necessary resources, which he omits mentioning, to alleviate these troublesome symptoms ; for they knew that opium would often prove ineffectual, where clysters were not previously given : and are there not other complaints attending women in labour besides the colic, in which opium is equally useful ? In a state of great irritability, where excessive violent pain, accompanied with irregular spasms, hinder the progress towards delivery, opium reduces all into order by lessening the sensations of the patient. Nor are opium and clysters the only remedies by which false

pains are subdued, for they not unfrequently arise from an inflammation of the womb. True labour is only to be brought on in such instances by bleeding and purging*; and when each of these methods are to take place, or whether the pains are true or false, only can be known to those who are capable of judging from the sensation of the parts concerned, and the effects which the pains produce. The same may be said regarding false pains, and those which sometimes much resemble them, brought on by an obstruction in the passage of the child. If a proper distinction is not made, we may be trifling with opium when something else ought to be done; and this remedy may, in other instances, protract the labour when not timely given.

There is no author that I recollect, among modern writers, who has examined into the truth or falsehood of the very an-

* See Essay on Child-Bed Fevers,

cient opinion regarding the influence of the moon on women in labour! If true, it explains the lingering and periodical returns in parturition which sometimes happen, and at what time opium, if necessary, ought to be administered: I shall therefore take this opportunity of reciting what I have heard, and the observations I have in consequence made, in my attendance on women in this situation.

More than twenty years ago, when talking of the opinion concerning the influence of the moon upon the human body*, with a gentleman of learning and clear understanding, he informed me, “that a
“clergyman, in Gloucestershire, had made
“observations many years upon what hap-
“pened in her different motions. Among
“other things he found, that the symptoms
“of parturition very frequently came on at
“her southing, or at the opposite point;

* See Essay on Inflammation.

“that,

“ that, if they went off, or lingered for a
“ time, they returned at these periods, as
“ regularly as the moon, till the work was
“ accomplished : and so great an adept was
“ he in this species of augury, that, being
“ consulted by his rural neighbours, when
“ they had reason to expect the event, he
“ was able to foretel at what hour their
“ herds would increase ! He brought his
“ son up to surgery and midwifery, who,
“ in consequence of the instructions he re-
“ ceived from his father, attended to these
“ circumstances in his practice at Gloucester ;
“ and found they very often corresponded
“ with the observation the old gentleman had made, where no impediment was in the way.” It was in consequence of the gentleman’s lady being in labour that this discourse happened ; and to shew the truth of this doctrine, he wished him to remember that she began at five in the morning, that he was of opinion

nion she would linger all day, and that the labour pains would return again with vigor before fix in the evening : all which happened with the most desirable accuracy. Indeed, he was furnished with so many similar instances from the surgeon, that I could not avoid attending to what he said upon the subject.

At first I had recourse to the common fouthing tables, and afterwards to one more correct ; and by all of them there appeared to me to be some truth in what I had been told. The beginning of labour is sometimes so obscure, that it is hard to fix the time ; but as often as it can be done, I wish notice may be taken whether the following observations bear any resemblance to truth.

If the woman is at her full time, and every thing in proper order for a happy delivery, it will often be completed in consequence of the first impression made by this planet.

If,

If, from the peculiar situation of the foetus, more time is required; at which ever period of the moon the labour begins, it will go on twelve hours and a half or thereabouts*, which is the time she takes to gain the opposite point, and will then, perhaps, terminate.

If the labour has not advanced during the interval, no material alteration may happen till she completes her diurnal revolution; or where there is any slight impediment in the way, twelve hours and a half more, or double that number may elapse before the attendants are released. For instance, at nine o'clock in the morning, while a lady was sitting easy in her chair, symptoms of approaching labour came on without the least pain; and this upon inquiry, I found happened about the

* The moon takes from twenty-four hours and forty minutes to twenty-four hours and fifty-seven minutes to perform her diurnal revolution; but, from various observations, I think, the pains recommence when she begins to get near the opposite point, perhaps within half an hour, though it may be more or less.

fouthing of the moon. As no pain followed, I imagined the child lay high, and that labour pains would not come on till next morning, which accordingly happened; for she was perfectly easy all day, and had an exceeding good night, but betwixt nine and ten o'clock next morning she suddenly fell into labour, and was soon delivered.

Another was seized in labour at five in the evening; at the fouthing of the moon; but the pains diminished in about an hour, leaving the *os uteri* not dilated more than the size of a six-pence. Lingerings pains followed all night, and betwixt five and six in the morning, when they increased, the dilatation was about the circumference of a half-crown. Labour, however, did not now terminate, for it soon decreased, and lingering pains again ensued, till about six o'clock in the afternoon, when they returned with force and effect; nature completing her work in about the space of an hour.

L

Another

Another woman had been in labour five days, and on Thursday in the afternoon, when I first saw her, I was told by the midwife that the child's head had been in its present situation ever since Monday morning; and that strong pains had periodically returned. Upon examination, I found the birth had been protracted by the head resting against the *os pubis*; wherefore, I desired that she would lie upon the bed with her shoulders lower than the rest of her body, which had the desired effect of removing the obstacle: for when the pains returned at the lunar period, she was soon delivered with great ease. I may truly say, I have frequently met with similar instances; and have often kept my patient and the family in temper, and in spirits by my predictions, through a tedious labour, which is a matter of no small concern in the practice of midwifery. In this instance, the lingering or intermediate pains are preparatory to the
future

future event ; and we may wait with ease of mind till the happy minute arrives, without offering any other assistance than what comes from the hands of the nurse. Indeed, when the patient is much fatigued, recourse may be had to opium, but it should not be given near the time we expect the pains to return ; because by lessening irritability at this period, we may protract the labour longer than would otherwise happen. In short, every old woman in the kingdom knows, that women after falling in labour often get better, and go on to the opposite hour, or, perhaps near twenty-four or forty-eight hours longer ; soon after which the pains recommence with vigour, and nature finishes her work. These periodical effects are certainly governed by some periodical cause ; and, if we cannot find a better than the ancients assigned, we may still cry out with Glycer, *Juno Lucina fer opem, serva me obsecro.*

These reflections are not to be confined to the management of false or lingering pains ; for suppose, a woman to be seized with convulsions at the onset, or any time in labour, in what manner can a prescriber direct with true judgment who is unable to make a proper inquiry into the complaint? and why should guess-work take place where true information may be obtained? Regarding child-bed fevers too, the prescriber will be in the dark if he is not able to draw conclusions from the size of the abdomen previous to labour ; from the progress of the labour, from the evacuations which naturally happen, from the coming away of the placenta, from the different appearances of coagulated blood, and from a hundred other things, which can only be known by those who practice midwifery: it is therefore incumbent on physicians, who intend to prescribe in puerpery to learn this art, and I believe it was never better taught than in these days.



T W O
DISSERTATIONS,
THE ONE, ON THE
BRAIN AND NERVES;
THE OTHER, ON THE
SYMPATHY OF THE NERVES,
AND
ON DIFFERENT KINDS OF IRRITABILITY.

THE SECOND EDITION, WITH ADDITIONS.

ADVERTISEMENT.

AS there are no Diseases in which the Nerves are unconcerned, the following Dissertations are prefixed to these Medico-chirurgical Works.

DISSERTATION I.

CONCERNING

The BRAIN and NERVES.

EVERY man who has made a proper inquiry into the science of medicine, knows, that the word Nerve was not used to signify any part of the body but the tendons and ligaments, till the days of HEROPHILUS and ERASISTRATUS; who were the first discoverers of the *use* of the nerves arising from the brain: and they very improperly gave them this name, probably, because they appeared to be white chords, somewhat resembling tendons, and had really a nervous, but what is now called, a membranous coat; though in every other respect destitute of any properties by

Nerves arising from the brain why so called, but improperly;

which they should have been thus characterised*.

and pro-
ductive of
mistakes,

However, this appellation immediately affixed to them the idea of a chord, or one solid body; and the firmness and tenacity of the *dura* and *pia mater*, which make part of their substance, strengthened this opinion: hence innumerable false theories, and much perplexity seem to have arisen; and though the discoveries in anatomy have been abundantly sufficient to rectify these mistakes, (see Boerh. Instit. sect. 281, and 283.) yet it does not appear, that the discoverers themselves, or any body after them, have formed a right conception about this matter. For though they knew that the “callous hardness of the

notwith-
standing
the late
discoveries
in anat-
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“nerves arose from their including mem-
“branes, in which the medulla of the brain
“retains its original disposition invariably
“throughout their whole distribution to

* See Hip. de Locis in Homine, sect. 1.

“every

“ every part of the body, and that it
 “ continues of as soft and mucous a sub-
 “ stance in the smallest fibrils, as at its ori-
 “ gin in the brain itself ;” yet they could
 not get clear of the commonly received
 opinion. For at the same time that they talk
 of the brain being a *mucus*, they also tell
 us, “ that its *fibres* form the nerves, which
 “ are wholly pervious, and through which
 “ the nervous juice, secreted in the brain,
 “ passes to every individual point in the
 “ body, and performs all the actions of
 “ the nerves : for which purpose (excepting
 “ the nerves of seeing, hearing, and smell-
 “ ing) they say, after coming to the seat
 “ of action, they deposite their coats ;
 “ and this tubular pulp is formed into
 “ little heaps termed *papillæ* ; and that
 “ the least fibre or solid part of the body
 “ is not without its nerve.” So that in
 fact they suppose, the inward or medul-
 lary part of the nerve to be *fibrous tubes*,
 carrying a fluid from the brain ; and that

Writers
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 opinion,
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 nerves are
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 their ac-
 tions.

this fluid performs every thing which is said to be done by the nerves.

Haller of
this opi-
nion,

So firmly was this theory fixed in the mind of Haller, that, in his experiments on the sensible and irritable parts of animals*, he did not discover that the *gelatinous* substance connected with *muscular fibres*, was the brain; though he says, "the most irritable parts are deprived of that property, by robbing them of this *mucus*:" consequently, he was under insurmountable difficulties to account for *mucus* produced from insensible lymph becoming irritable, though he undertook to demonstrate, that irritability does not depend upon the nerves, but upon the original fabric of the parts which are susceptible of it. Whytt too, not being aware, that in irritating the *common membrane*, he irritated the brain, had recourse to a *sentient principle*, in the muscular fibres, to account for their contraction, upon being irritated. So difficult it is to

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Whytt for
the same
reason is
forced to
suppose a
*sentient
principle*
in the
muscular
fibres.

* Page 53.

leave off copying every thing but nature, that even later writers tell us, that the nerves are masses of fibres, arising from the internal or white part of the brain; and are covered with membranes of a very firm texture: so that not the whole, as originally, but the inward part only (which they say is fibrous) is now called the nerve.

Lastly, by an intended refinement, the inward part only, instead of the whole, is improperly called the nerve.

If we examine the brain with our own eyes, and our own senses, without being prepossessed by any former opinion, there is every appearance, that this doctrine, after all that has been said about it, is unsupported by facts. In particular, I have examined impartially the brains of hares, sheep, and oxen, as directed by Boerhaave (see Instit. § 270) to discover the filaments which made these *nervous fibres*; but instead of being convinced of the truth of his opinion, I am thoroughly persuaded it is unsupported by facts. Nor do I think it would be any difficult matter to prove, from his own account, that what he has said about

But all this doctrine is unsupported by facts,

and seems
to be an
hypothe-
sis.

about the brain being *fibrous*, is wholly an hypothesis; for it is confessed that the fibrils, which *are supposed* to arise from the cortical part, are *invisible* even with the assistance of the best microscopes, till a *hundred or a thousand* of them are joined together, when they may be perceived under *the form* of the medullary substance of the brain.

If we cut open the brain, and view it with a good microscope, it appears, as far as we can discover, to be a *mucus*, or *gelatinous substance*, void of fibres. If we raise up a small piece of it with the point of a knife, so that we can see through it, it has the same appearance; and upon letting it drop, it falls in the same manner as any other mucus, or gelatinous substance of the same consistence would do.

For the
brain ap-
pears to
be a mu-
cus, or ge-
latinous
substance
of a parti-
cular kind,

The medullary part of the brain, especially the *medulla spinalis*, adheres to the fingers like glue, upon being pressed; and by comparing it with flour and wa-

ter

ter * made of a proper consistence, they have a resembling tenacity. Both alike may be gently drawn into the appearance of membranes or fibres ; and in whatever manner the examination is conducted, it appears to be a mucus or a gelatinous substance of a *particular kind*, cohering firmly together. Nor can we have a better evidence than Haller on this occasion ; for at the time when he was a great advocate for the brain being fibrous, yet when he saw it without knowing what it was, it appeared to be "*a mucus*:" and if the most unorganized fluid will conduct the electric vapour, why may not a sensible mucus be the fittest conductor of sensation ?

Of which Haller, contrary to his own opinion, is an evidence.

It seems agreed, that every nerve (as it is called) which is capable of being seen, is a bundle of nerves ; and upon this bundle being cut open longitudinally, the

* This comparison is not meant to be extended farther than to assist in proving that the brain is not fibrous.

Nor is the inside of a nerve a mass of fibres, but a portion of the brain which is conducted to, and spread upon the muscular fibres.

outside or membrane belonging to each of them, will make a fibrous appearance: but view the brain within the skull, just before it enters these membranes, with a microscope, and it will appear, that the inside of a nerve is not a mass of fibres arising from the white part of the brain, but that it is a small portion of the white part of the brain itself, which is not fibrous, but the substance described. This being conducted by the *dura* and *pia mater* to the different parts of the body, it deposits one or both of these coats, as our experiments will prove, and is diffused round every fibre, not only upon the part it is carried to, but a considerable way round: so that each portion of the brain conveyed by its own nervous case, meeting, form one continued or connected substance, in every part included within the cuticle; and gives that glossy or gelatinous appearance, which is so readily distinguished in the muscular fibres. From
whence

whence it appears, that the brain is not confined to the skull, but is expanded in every part of the body, in the same manner, but much thinner, as the retina is expanded at the bottom of the eye. We have one instance of this in what has been just advanced.

If we view the optic nerve at its going out of the skull, it has not the least fibrous appearance*, but seems to be the mucus or gelatinous substance described; and when it enters the inside of the eye, it at least deposits its coat, formed by the dura mater, and is spread unchanged for the purposes of vision. If we put the retina

* Care must be taken, in making this experiment, that we are not deceived by false appearances. If we snip the edge of the *sclerotica*, where it surrounds the *iris* so that the eye may be turned inside out, and then view the retina perpendicularly through the vitreous humour still adhering to it, it will seem to be perfectly fibrous; but this fibrous appearance is given it by the fibres of the membranes underneath, and by taking a slanting view over it, the true structure will be seen; or remove it, and view it by itself, and it will appear destitute of fibres.

into

into soap lees*, it soon becomes ropy, and has more the appearance of the white of an egg, than of any other substance with which I can compare it. If it is afterward laid upon a piece of thin white paper, and viewed with a good microscope, at the time the paper is held against a well-lighted window, if there is any dependence upon our eye-sight, it will appear to be as destitute of any thing fibrous (if we except the blood-vessels) as any substance can possibly be; and upon drying it upon the paper, it leaves not a trace

* This experiment was made to discover, whether there is any part of the retina membranous; for seeing that the inner *lamina* of the *pia mater* insinuates itself into the brain, and that the *dura mater* is strong enough of itself to form a conductor, I was led to suppose, that the brain is connected, and spread by the *pia mater*, reduced to a most extreme degree of fineness: but the above experiments, taken all together, do not seem to warrant clearly this opinion, unless we suppose a membrane of that fineness to be invisible, when dried upon paper.

be-

behind*. Those, therefore, who adhere to the opinion, that it is formed of threads, which continue separate and distinct, certainly prefer conjecture and hypothesis to ocular demonstration; for no man has yet seen the termination of a nerve: and we only wish those who still adhere to this fabricated doctrine, to view the brain, the retina, and the inside of a nerve, in a solar or other proper microscope, and to be convinced by what they see. We are persuaded the least signs of a fibre, except blood-vessels, will not appear; and we have not any doubt of making a convert to the opinion advanced, of every ingenuous man whose mind is open to conviction.

* In note to sect. 274 of Boerhaave's Institutes, it is said, "Brain being distilled with a very slow fire, in a heat not exceeding that of boiling water, quickly turns almost wholly into a limpid water, leaving very few solid vessels behind; or that being freed from the *pia mater*, it almost wholly evaporates in the shade."

M

It

Therefore sensation is not always lost upon tying or dividing a nerve in the part to which it goes ;

It is said, indeed, that tying any nerve destroys the sensation of the part to which it belongs ; which, if strictly true, would disprove the whole of this doctrine : but it does not hold good any farther than when all, or the greatest part, of the nerves belonging to a particular part are divided or tied. If the spinal marrow is divided near to the head, we know the parts below soon irrecoverably loose their action ; or if the bundle of nerves passing out of the *axilla* were divided or tied, sensation in the greatest part of the arm below would probably be lost. But we all know, that in performing the operation for the aneurysm in the arm, if the nerves which accompany the brachial artery are tied, a temporary numbness is only felt, and sensation in any degree below the ligature is not lost.

but a temporary numbness, or palsy, is often the only consequence.

I have seen the superior cubital nerve torn asunder above the elbow, in a gunshot wound, with considerable loss of substance,

stance, and a temporary palsy only was the consequence: in short, does not a division of large nerves in wounds daily happen, without any loss of sensation below? which can only be accounted for, by the communication we have endeavoured to prove. Those who account for it by talking of a communication of nervous influence independent of the nerves, will probably fail in their proof.

If there were not this communication, and if we suppose them vessels going to particular points, all the nerves in the body would not by any means be sufficient to accompany the muscular and other fibres: whereas, when we view them in the light of diffusing the brain, it is very obvious in what manner a less number of nerves may supply the whole body with sensation. Beside, if the nerves continued, as some suppose, separate chords, or straight lines, to their extremities, would the true image of a horse (for in-

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stance)

Farther
proof.

stance) be conveyed distinctly to the mind, unless taken up by their extremities? Would not then this single object be multiplied in proportion to the number of nervous filaments? Or would not irritation from the point of a needle be confined to the nerve or filament upon which it happened to be made? Whereas the truth is, all the muscular fibres, for a considerable way round, are immediately convulsed. In short, it appears to the naked eye, that nature has diffused the brain for the purposes of hearing, seeing, and smelling: then why not for receiving and conveying the other senses?

However, I have not contented myself with reasoning by analogy; for I have compared the medullary part of the brain with the *retina*, with the olfactory and auditory nerves, the nerves of the limbs, and with the gelatinous substance, or mucus, which is very thinly spread upon the muscular fibres, by the help of a proper
I micro-

microscope ; and find them all to have the same appearance. If we irritate the medullary part of the brain within the skull, we find universal convulsions follow ; if we irritate a single nerve, a neighbouring muscle is convulsed ; and if we irritate the gelatinous substance upon the muscles, the muscular fibres are convulsed* ; which evince that they are all the same substance.

And experiments supporting the doctrine advanced.

The contraction, dilatation, and tremulous motions, which for a considerable time happen to the muscular fibres, upon being laid bare in slaughtered animals, I have no doubt are owing to this external mucus, or gelatinous substance being irritated by the air : because we see the same effect is produced by irritating it with a

* Whytt says (Vital and invol. Mot. p. 237.) in order to the contraction of a muscle, it is not necessary that the stimulus should be applied to its fibres ; it is enough that the common membranes covering them are irritated, the same effect being hence produced as from wounding the very fibres of the muscles.

bristle, or the point of a fine needle ; and because the tremulous motion entirely ceases, nor can motion be produced in the fibres by the air, or by any other means, when it is rubbed off, or becomes dry.

The brain
is the only
irritable
part of the
body.

Whence it is evident, that the brain is the only part of the body which is capable of being irritated ; for though it be true, that a nerve cannot be made to shorten itself by being irritated (because it is a gelatinous substance invested in unelastic membranes, and does not perform its office by contraction), yet it does its office of receiving irritation, and of conducting it in its full force to the muscular fibres, because they immediately contract upon its being irritated.

The muscular fibres are the only parts of the body which do their office by shortening themselves ; and it seems owing to this property, that they are the only parts which contract and have tremulous motions upon involuntary irritation. But
that

that this irritation is first received by the medullary part of the brain, and by that communicated to the muscular fibres, is beyond possibility of doubt; because they are incapable of being put into motion when divested of this substance, as may be easily proved by rubbing it off with a dry cloth: nor does it lose this property of producing motion in a part separated from the body, or after an animal has ceased to breathe for a considerable time, as innumerable instances prove. Whence it follows, that irritability entirely depends upon sensibility, as no part can be irritated which is insensible*.

But to explain myself farther; might not the arteries, with the blood contained in them, almost with equal propriety be

The structure of the nerves farther explained.

* Haller asserts (on Irrit. p. 32.) that the most irritable parts are not at all sensible, and vice versa: according to which opinion, the muscular fibres must be insensible, because they are very irritable; and yet they appear to be sensible; or why does a patient shew such signs of pain, when they are compressed with a ligature, in taking up divided arteries?

called chords? They are tubes, which conduct the blood to every part of the body. The *dura* and *pia mater* † form tubes, which conduct the brain in a similar manner : but the one conducts a fluid, and the other a *mucus*, or a gelatinous substance ; and the only farther difference I know, is, that each portion of the brain has a separate conductor ; whereas the blood is carried from the heart by two arteries, and distributed by the action, and branches of those arteries.

Now there is not any doubt, that a fluid is secreted in the brain, and that it is as immediately necessary as blood, to the life of the animal ; because we meet with it in dissecting the brain, because this fluid fills the tumor accompanying the *spina bifida*,

† It has before been observed, that there is a doubt, whether the whole of the *pia mater* is an including membrane. Perhaps the outward *lamina* may be an including, and the inner a connecting membrane ; but not being able to prove this with certainty, we have here adopted the general opinion.

and

and because opening these tumors is as certain death as draining all the blood from the body: and yet, it is very uncertain what office this important fluid performs. Perhaps it may be the conductor of some more active agent; it may be the proper food of the nerves; or it may do both these offices: but we have no more reason to suppose, that it performs all the actions of the nerves, than that the blood performs muscular motion, because it circulates through the muscles. That it is the conductor of some more active agent, may be supposed from being itself incapable of those rapid effects produced by the nerves; and from our knowing that the most active matter may be conducted by a fluid. The medullary part of the brain must require nourishment*. It is certain the blood-

* Those who imagine that a fluid performs all the actions of the nerves, are obliged to suppose it a thin volatile liquor of a great force and elasticity, or rather that it is the universal elastic matter which is diffused through the universe; otherwise it does not answer their purpose: but

vessels terminate in the cineritious part, and it is, therefore, reasonable to suppose, that it secretes or imbibes from the lymphatic arteries a proper fluid for that part of the nervous system, into which red blood does not enter. The cineritious is, perhaps, placed in the medullary or middle part of the brain and nerves, for this purpose; nor can there be any impropriety in imagining, that the same fluid was ordained for more uses than one. Having done its office, it may drain from the expanded brain into the interstices of the muscular fibres, and, being taken up by the lymphatics, be again carried into the circulation. We know, by wounds of the brain, that the medullary and cineritious parts perform different offices; because much of the cineritious part will often be removed, or suppurate, without inconvenience: but when the medullary part sup-

but whoever looks at the fluid secreted in the brain, will see that it is too gross to be very active, and that what has been said about its extreme subtilty is mere invention.

purates

purates or is destroyed, a destruction of the whole body follows. However, whether what is said about the secretion of the fluid belonging to the brain be true or false, it seems evident, from the experiments mentioned, that the medullary or gelatinous part of the brain, whether seated in the head, or the other parts of the body, is the *receiver, the seat, and conductor* of every kind of sense. The manner in which it perceives, or communicates sensation, or its effects, to other parts, may after all, be among those secrets in nature, which it is hard, or perhaps impossible to discover.

DIS-

DISSERTATION II.

OF THE

SYMPATHY of the NERVES.

Of inflammatory irritability:—Of spasmodic irritability:—Of inflammatory and spasmodic irritability united:—And, lastly, of inflammatory irritability attending both a fixy and a putrid state of the blood.

The brain itself is carried to every part of the body.

Impressions made on one part of it affect the whole, and occasion

IN speaking of the nerves, it is evident I would wish to be understood to mean the *brain*, conducted in the *dura* and *pia mater*, extended to every part of the body: and my practice and experiments inform me, that involuntary impressions made upon that part of it which covers the muscular fibres, are not only
con-

conveyed to the head by the nerves, but that they are also conveyed immediately along the diffused brain to every part of the body.

what is called consent of parts ;

This fully explains in what manner the well known consent of parts is brought about, without the difficulties which those lie under, who believe, that there is not any communication in the extremities of the nerves, but that every individual nerve is quite distinct from every other, not only in its rise from the medullary substance in the brain, or spinal marrow, but also in its progress to that part where it terminates.

Some have gone so far as to suppose, that in general the nerves of the body sympathize, not from their connections in their progress, but from their connection at their origin ; while others, being aware of the impossibility that instantaneous sympathy should first pass round by the head, have supposed the ganglions to be the chief instruments in this matter. For instance, they say, “ that the intercostal
“ and

which has not been hitherto satisfactorily explained :

“ and other nerves form a ganglion close
“ by the *glandulæ renales*, into which the
“ eighth pair enter ; and that from such a
“ knot on each side, the nerves of the guts,
“ liver, spleen, pancreas, and kidneys, are
“ derived : nay, that the extremity of this
“ nerve is sent down to the *pelvis*, to sup-
“ ply the parts there. Hence the great
“ sympathy of those parts may be easily
“ deduced, and a reason may be given of
“ the violent vomiting that attends a *ne-*
“ *phritis*, and of the belching colics, and
“ stomach-achs, which often ensue on the
“ obstructions of the *menstrua*.” But this
only accounts for a particular, and not a
general consent of parts ; nor is even this
doctrine evidently true. If the ganglions,
indeed, contain small portions of the brain,
as some suppose, it is easy to conceive in
what manner consent of particular parts
may be carried on by them ; but if the brain
passes through them, inclosed in the dura
and pia mater, it cannot well be supposed
that

that sensation can be communicated through membranes from one part of it to another. However, we are willing to allow consent of parts by various ways : there is no doubt but sensation is communicated along the nerves to the head, and perhaps to particular parts, by means of the ganglions; and all we contend for is, that there is a general and immediate consent of parts along the brain, diffused throughout the muscular fibres, because this connection is demonstrable to our senses; and I will mention some practical instances apposite to our purpose.

but consent by the expanded brain is demonstrable to our senses,

When a wound becomes inflamed, the nerves (*i. e.* brain) in the affected part become more irritable, and a fever with a quicker pulse are produced; probably from the brain diffused round the fibres of the heart becoming, by this consent, more irritable than usual; whence the blood stimulates it with greater force, and a brisker circulation ensues. Nor can we have

as practical instances prove.

have much doubt of this being the true cause of fevers arising from an inflammation; because they disappear immediately upon the increased irritability of the affected part being removed.

CASE I.

I took off a lady's breast, who was of an irritable habit, and also several large glands out of the *axilla*, using dry lint and digestive pledgets for the first dressing; but when the wound became inflamed, a vomiting came on, and the nerves of her stomach became so very irritable, that she could not bear the lightest food passing into it, without its being thrown up again: but, by pouring warm oil into the wound, the irritability of the nerves about the part was taken off, the vomiting ceased, and her stomach was restored to its proper tone.

CASE II.

A gentleman, thirty years of age, who, being troubled with ulcers, was frequently seized with an erysipelas on his legs; during the inflammation, a vomiting always

ways came on, especially upon his taking food in a morning, when his stomach was empty : internal medicines afforded him no relief ; and applications, which were capable of taking off tension, were omitted, on a supposition that they might do harm. But upon this patient falling into a person's hand, who thought differently about this matter, the vomiting was soon entirely cured by topical applications alone, which took off the increased irritability of the affected part.

A gentlewoman, forty years of age, had CASE III.
a most violent cough, during the increase of an abscess in her hand and wrist ; but upon the matter being let out, the tension abated, and her cough *directly* left her ; because the increased irritability of the nerves in the lungs, occasioned by the inflammation in the wrist, was by this means removed.

“ A middle aged woman, who had CASE IV.
“ sprained her right foot and ankle, some
N weeks

“ weeks after, not only complained of a
 “ pain and stiffness in these parts, but also
 “ felt, though in a much less degree, a
 “ tension and foreness over her whole bo-
 “ dy * :” which would not have happen-
 ed, unless there had been this nervous
 expansion, of which we have been speak-
 ing.

I took very lately a large scirrhus out
 of a woman's breast, of a very irritable ha-
 bit ; and, after some time, an inflammation
 in the axilla appeared, attended with rigors,
 fever, and excessive reachings, so that she
 could not keep any thing upon her sto-
 mach. Nor was the immediate connection
 of every part of the brain ever more evi-
 dent ; for upon pressing the inflamed part
 gently, to discover the state of it, a reach-
 ing to vomit instantly came on : it ceased
 upon the pressure being removed, and
 again returned upon pressure with the
 finger taking place, with the same quick-

* Whytt on Nervous Diseases, p. 80.

ness that the pipes of an organ would speak upon the keys being pressed down. The irritability of the whole habit did not lessen till the matter, which was forming, had destroyed the vessels which contained it: though the gentleman who had the care of the patient in my absence, seeing the ulcer become dry, glossy, and flabby, gave a decoction of the bark which relieved her vomiting, probably by taking off the irritability of the nerves of her stomach; and when suppuration had taken place, all these symptoms entirely disappeared.

But there are different kinds of irritability. This we have just been treating of, is inflammatory irritability; which always arises from distention, or continued irritation; and always, while the inflammation is attended with any considerable degree of violence, produces a fever and a quick pulse. Another kind is spasmodic irritability; which is confined to the ex-

There are two kinds of irritability.

which are distinguished.

panded brain, and never affects the pulse or produces a fever.

The gelatinous substance, or mucus, which gives the muscular fibres their glossy appearance, seems to be expanded brain: and if we view a very irritable clear ulcer, unattended with inflammation, through a microscope, we shall find it of a variegated purple colour: there manifestly appears to be a kind of obstruction or opaqueness; the disease is as evident, as an inflammation upon an external part; nor does the preternatural irritability ever cease, till this variegated colour disappears. I have seen this disease bring on the *tetanos*; and I will give an abstract of a case or two of this kind, which will perhaps convey a stronger idea of spasmodic irritability, and the manner in which involuntary impressions are communicated along the brain, than any thing I can say.

CASE V. A man, forty years of age, in the beginning of October, 1768, had the hinder
part

part of his heel torn, and bruised very much by the wheel of a waggon; and on the thirteenth of that month my assistance was desired.

I found a ragged, undigested ulcer, something higher than the *os calcis*; and upon passing a probe, a *sinus* was discovered, penetrating to the bottom of the heel: this being opened, discovered, that the bone *Tetanos.* was bare in many places, the tendon much lacerated, the adjacent parts greatly swelled, inflamed, and painful; and a fever accompanied the whole.

A mild digestive balsam, with cataplasms, were applied; and a decoction of the bark was given with advantage; for at the end of five days the fever (which never returned) had entirely left him, and the ulcer began to have a very promising aspect: he complained however of a stiffness in the muscles, which move the lower jaw; wherefore I ordered him thirty drops of laudanum, which made him sleep. But

notwithstanding we kept repeating our dose every eight hours, yet in three days time the jaws were fixed, spasms came on in the muscles of the injured leg, and soon afterwards the muscles of the back were affected in the same manner.

I took off by incision all the diseased parts down to the bone, and by a proper position of the knee and foot, the tendon of the *gastrocnemius* was preserved in a state of relaxation : but though the sore digested well, the new flesh rose out of the bone, the ulcer incarnated regularly, and (if we except that the fibres were tinged with a variegated purple colour) it looked well ; yet, instead of lessening, the spasms daily increased, and notwithstanding he now took eighty drops of laudanum every four or six hours, the degree of irritability became so very great, that the least noise was offensive ; and a pair of tongs, accidentally falling upon the floor, brought on violent convulsions.

If

If the door of his room happened to be left open, the fresh air was not only disagreeable but painful, and presently renewed his spasms; wherefore, of his own accord, he put on a thick flannel waistcoat to avoid its effects. Upon pressing the fore as gently as possible with a piece of rag, to take up matter, every fibre considered distinctly was thrown into spasms, which instantly extended to the muscles of the calf of his leg, and from thence to every part of his body; in particular his head was drawn backward, with sudden and violent force; and at times, I believe, he underwent every kind of convulsion. His strength daily lessened, and it evidently appeared, that bark and opium only gave a temporary relief; and that if farther assistance could not be given, death would be the consequence.

Reflection brought to my mind the effects of the balsam of Peru in allaying preternatural irritability in uninflamed ul-

cers ; wherefore, on November the 4th, it, was applied to the fore, and though the spasms did not entirely cease, yet they were *directly* abated so much, that from this time we had not any farther occasion for opium. By continuing this dressing, the fore became less irritable, the patient slept, the spasms gradually disappeared, and in about a week's time entirely left him, though the jaw continued still to be locked for some time longer ; nor did he recover the complete use of it for several weeks.

CASE VI. A young gentleman, fifteen years of age, was, in the latter end of November 1758, seized with pain all over him, which (as he had an eruption upon the skin that now disappeared) was taken for a scorbutic rheumatism, and treated accordingly ; but without any good effect. He was several times let blood, and after some blood being taken away, in the beginning of February, he was seized with convulsions, upon which I was desired to see him.

I found

I found him very weak, low, and much reduced; his pulse was regular, but weak; he had excessive and constant pain in his knees, shoulders, and wrists, without swelling or discolouration; he frequently had spasms in the abdomen, in the muscles of the abdomen, and in several parts of the body, and his urine let fall a sediment.

I ordered him a variety of medicines at different times, but with no better success than those who had gone before me; for his spasms continued to increase, and at the end of three weeks or a month he was seized every ten or fifteen minutes with a violent difficulty of breathing, from a spasm of the diaphragm. Upon these alarming symptoms, a physician of eminence was called, who prescribed opium in large quantities, with the most powerful antispasmodics he could think of, but without giving any relief; and the most violent convulsions followed his taking three grains of calomel, and twenty grains of rhubarb.

Soon

Soon after this, medicines were discontinued, but the pain in his knees, wrists, and shoulders, &c. still remained. His body and limbs were almost constantly distorted; he got little or no sleep; which, with the difficulty of breathing, that arose from the spasms of the diaphragm, made his case truly deplorable, and his life miserable, till the tenth of April, when I was desired to see him again.

I had already reconsidered the sufferings of this unhappy youth, and was led to imagine, from the violent effects of the rhubarb and calomel, that the nerves of the stomach and bowels had acquired a most acute degree of sensibility; that all his complaints arose from this cause; and I now examined with a view to this point, by laying my hand upon the abdomen before the fit came on.

The patient being reduced nearly to a skeleton, I could very clearly discover, that the mesentery first rose into hard knots; spasms of the back of the diaphragm immediately

mediately followed, which as quick as lightning were communicated to every part of the body, and gave me farther reason to think I had been right in my conjecture. I had already thought of the balsam of Peru, as a remedy to ease this patient, therefore, at the coming on of the next fit, I gave him upon sugar a large tea spoonful (more than a drachm) of this medicine *, which instantaneously took away the pain in his wrists and knees, and made him perfectly easy in every part of his body.

An hour afterward a return of the spasms was entirely prevented by a like dose; and by taking the same quantity regularly three times a day for a week, and then twice a day till he had taken three ounces, drinking about four ounces of warm tar-water after each dose, he was

* When balsam of Peru is mixed with the yolk of an egg, and made into a draught, it is not so efficacious as when given in this simple manner; probably because it is changed by the egg: nor shall we ever know the use of simple medicines, till we leave off the practice of altering them by joining syrups, conserves, and the like.

perfectly cured, without the least return or symptom of his complaint.

CASE VII. "A girl of nine years, as often as one
"of her feet was extended, so as to bring
"it nearly to a right line with the leg, and
"consequently greatly to stretch its ligaments and tendons, was instantly seized
"with a most violent convulsive cough,
"which continued, without intermission,
"as long as the foot was kept in that position." We shall understand how this cough was produced, by reflecting, that not only the brain in the stretched part, but in every part of the body, from being one continued substance, was irritated; and very probably this girl had that disease in her nerves, which produces spasmodic irritability.

CASE VIII. A gentlewoman, seventy years of age, had been seized with a paralysis of the left side, and though she recovered the use of her arm, her leg remained in a very feeble state, and in a few years an ulcer, with the most acute sensation, gradually formed

formed itself near the ankle. Upon touching it with lint, the most exquisite pain followed, spasms were instantly brought upon the thorax of the same side, and we were obliged to proceed with the utmost caution in our dressing to avoid these symptoms, which, notwithstanding, we had several opportunities of observing during the cure.

Perhaps we cannot have clearer instances than these cases, to shew the immediate connection betwixt every part of the brain expanded over the muscular fibres; especially the case of the locked jaw, in which there was not any occasion for conjecture, or dependence upon uncertain experiments. It was evident to the sight, that the effect of irritation upon a small number of fibres was communicated as quick as lightning to every fibre in a large fore, and from thence to every muscle in the body: nor could a train of gunpowder, upon being fired, have given a stronger conviction in what manner the
fire

These cases farther prove a general consent, by the expansion of the brain.

fire was communicated from one end of the train to the other. We are farther well assured, by the experiments mentioned, that spasms of the muscular fibres are always brought on by irritating the brain connected with them : so that from the whole it appears, that increased irritability does not confine itself to the part first affected, but is communicated from thence to every part of the expanded brain. Hence by taking off the increased or preternatural irritability of the affected part, we frequently restore every part of the body to its natural sensation. Nor are there numberless instances wanting to prove, that whatever impressions are made upon the brain, in which the will is not concerned, whether residing in the head, or in the extremities, either by medicines, or by any other cause, they are immediately with greater or less force conveyed through the whole of this one continued substance, like the electrical spark to every part of *a proper conductor*. Otherwise how comes it to pass, that

that a fit of the nervous asthma is relieved by a dose of the *lac ammoniaci*, as soon as it gets into the stomach? Or in what manner is the poor dog destined to dissection, instantaneously convulsed, and deprived of life in a few moments, by a small quantity of laurel water, communicating its deadly influence, from the nerves of the stomach, to the whole body?

However, in the case of the locked jaw, we are to remember, that spasmodic irritability was the consequence of inflammation; and we have frequent instances in sores, where inflammatory irritability comes upon, or is added to, spasmodic irritability: in which case, it seems to act with a double force, and often produces both a fever and nervous symptoms. For instance, an ulcer is extremely sensible and irritable, from that disease in the brain spread upon the muscular fibres we have spoken of; and if the part becomes accidentally inflamed, a fever, with hysteric symptoms, will frequently come on, with

more

Inflamma-
tion is not
confined
to a dense
fizzy blood,
as instan-
ces in
practice
evince.

more violence than if the same accident had happened to a fore in a healthy state.

But inflammatory irritability is not confined to a thick fizzy blood, it also accompanies a putrid dissolution of the blood and juices; and there is great inflammation in every putrid fever. Where putrid blood, or other putrid matter, is pent up in sores, it inflames and corrodes the parts, with which it comes in contact, and brings on a fever. Being absorbed, it undoubtedly, in like manner causes inward inflammation; because it brings on a fever, (often in the beginning with a strong full pulse) and destroys the *crasis* of the blood. Indeed, we have every reason to believe, that inflammation entirely depends upon nervous irritation; and there is not any thing which more powerfully irritates the nerves than putrid matter: wherefore inflammation and this kind of fever seem to be inseparable; all which hints will be extended into practice as we proceed.

ON

DISSERTATION
ON
ADVERTISEMENT
IRRITABILITY
IN GENERAL.

O

ADVERTISEMENT.

WE have used the words Irritability, Irritableness, and Brethism, synonymously.

DISSERTATION III.

O N

IRRITABILITY in GENERAL.

HALLER thought irritability resided in a mucus, and that no parts of the body were in this state, but those which could be made to shorten themselves upon being irritated*; a mistake we have already reprehended†: and it seems generally to be agreed, that every part is irritable which is capable of being fretted by a stimulus, whether it is put into motion or not. We may instance the skin, which that writer said was not irritable; for though it cannot be made to shorten its fibres by irritation, yet the ef-

The general opinion concerning irritability.

* Diff. on Sens. and Irrit. sect. 2.

† First Diff. p. 154, & seq.

The effects of irritation upon the human body.

fects of blisters are evidences of its irritability. The truth is, the effects of irritation upon the human body are not only mobility or spasm, but greater secretion; for at one time it produces spasms, and at another an increase of heat, with a greater flow of humours to the irritated part.

What parts of the body are irritable.

Different kinds of irritability.

Natural irritability,

in which there is a difference.

Every part of the body then that can feel, is irritable, or, in other words, capable of being more or less fretted, according to the state of the nerves. But there is a natural, and there is a morbid or preternatural irritability; and even in each of these there is great variety. It is generally imagined, from the quickness of the pulse, that children are more irritable than adults; and beside this, there seems to be a difference in natural irritability, from a particular structure or temperament of body; because we may observe, in the application of topics, that the same degree of stimulus does not always affect in the same manner. In some habits, simple
plais-

plaisters, or mild ointments, are not only applied without inconvenience, but even with advantage: in others, they will occasion blisters, or in some degree irritate the part upon which they lie; and have been known to excite a violent inflammation and swelling. If we examine the skin, in these instances, we shall generally find it more delicate than common, and the irritableness to be hereditary; because it is the same in a whole family, and happens to their descendents: and every disease which is hereditary, must, no doubt, be owing to structure. In the Essay on the Gout, we shall demonstrate the truth of this doctrine; and if irritability of one kind arises from structure, may it not differ *ad infinitum*? The same may be said of irritability brought on by the absorption of morbid matter. The variolous matter, by affecting the solids, brings on one kind, the bite of a mad dog another; and so on in numberless other instances.

Heredita-
ry irrita-
bility ow-
ing to
structure.

Irritability
from
structure,
and from
disease.

Of erethism, preternaturally increased, we have already spoken in the last dissertation, under the names of inflammatory and spasmodic irritability; using these epithets to signify the diathesis with which it is accompanied, in order to lead us immediately toward the cure*. Nevertheless there were some things left unnoticed, regarding the difference betwixt irritability from structure, and from disease. The *viscera*, especially of the lower belly, are often the seat of morbid irritability throughout the whole body. I believe the increased irritability in intermittents always takes its rise in the abdomen; and in those troubled with a visceral fever, the body, by nervous connection, is often in a most irritable state, being scarcely able to bear a blast of wind, the hasty shutting of a door, &c. and yet their nerves in general are not fretted by plaisters, in the manner of those spoken of under increased

* See p. 172.

natural irritability. The same may be said of that kind of irritability which attends the gout; though there is no disease in which the nerves are more easily irritated by other causes. I knew a hypochondriacal gentleman, whose feelings were so very acute as to make life uncomfortable, under any state of the air, capable of giving a disagreeable sensation to the nerves: in particular, I remember he was thrown into violent convulsions, by a bricklayer, at work, chipping bricks within his hearing, one morning when he lay in bed: and yet in some accidents which happened to him at different times, I had opportunities of seeing that sores in him healed readily by common dressings. When he died, I had occasion to open the body, and discovered, I believe, the cause of his ailings, for I found the liver of an ash colour, exceeding small, and perfectly flabby.

The difference
betwixt
general ir-
ritability
brought
on by lo-
cal inflam-
mation,
and by a
bad habit
of body.

From what has been said it appears, that local inflammation brings on a general state of inflammatory irritability; and yet this differs much from irritableness accompanying a hot temperament of body, brought on by any particular mode of living, &c. In the former, irritating substances have no remarkable effect upon any part of the body, except the local affection; whereas in the latter, they are not unfrequently attended with dreadful consequences. A man, about fifty years of age, pricked his finger with a fish bone; an inflammation immediately followed, and extended itself to the whole arm, which swelled violently: matter was very soon formed, suddenly absorbed, and a violent diarrhoea followed, which in a day or two carried off the patient. Nor is it necessary to recite any more cases of this kind, to shew that acrimony in the juices increases morbid irritability.

It

It may often happen that different kinds of irritability affect the patient at the same time; and though, as we have observed, they may increase each other, yet they continue distinct diseases, and require the junction of remedies, which belong to each of them. If fever is attended with hysterical symptoms, as happens in the puerperal fever, antiphlogistics alone will not conquer the symptoms. In the slow nervous fever, the fever itself is to be subdued with cool air, &c. but nervous energy is to be supported with wine and other cordials. If a fever happens to accompany the hydrophobia, it may be abated by bleeding and antiphlogistics; but the irritability accompanying the original disorder, is not to be removed by these means. A lady was so extremely irritable, that upon setting her foot awry at any time, a vertigo immediately came on: the same happened whenever she pressed her hand against any hard substance; and her skin was, at the same time,

When different kinds of irritability happen together, in what manner to be treated.

time, so remarkably irritable, that the mildest ointment or plaister could not be used without great inconvenience. It was easy, however, to discover, that plaisters had ever been disagreeable to the skin; but the other affection had arisen, within a few years, upon taking cold: and though she recovered, by nervous medicines, from this complaint, the irritability of the skin still remained. Have we not frequent opportunities of observing, in visceral and intermitting fevers *, in increased irritability from inflammation, &c. that though the preternatural erethism is entirely removed, a natural irritability, susceptible of the least irritation upon the skin, remains? These hints are mentioned to shew, that it may often be necessary to pursue different intentions of cure at the same time; and as there is such variety in irritability, we wish epithets could be applied to distinguish them, that the word irritability

* See Treatise on Inflammation.

might have a determinate meaning, so as not to be employed in a vague manner.

But, as a farther proof of the truth of this distinction, we may call to mind what we have before observed, that sedatives, opposite in their nature, are necessary to allay irritability under different circumstances; opium, in many instances, being incapable of affording any other than temporary relief. Some of these sedatives we have already mentioned*, and shall enlarge this subject when we speak of the kinds of irritability requiring their separate use; though it may here be observed, that words will be insufficient for fully distinguishing one kind of natural irritability from another. In external diseases, this can only be done by a view of the part, in the manner we learn the difference betwixt human faces, which may be readily conceived, though not well described. The effects of remedies, and the ap-

* Introduction.

pearance of the diseased part, will, however, in time make the difference familiar to the eye, and lead us to the use of those remedies which are found proper by experience. Wherefore we wish to enforce the necessity of attending closely to the minutiae in external disorders; that we may not, through mistake in the choice of remedies, bring on a train of troublesome, or perhaps dangerous symptoms, that may lead us from a right method of treating the patient. This happened in some of the cases mentioned in our Introduction; which mal-treatment, and a dissuasive from the entire use of ointments in sores, would have been avoided, had the state of irritability and the power of particular sedatives been attended to and known.

Nor are these remarks to be confined to external disorders; for in irritability from an internal cause, do not we often find sedatives of different kinds necessary to accomplish a cure? When we are not cer-
tain

tain of the nature and seat of the disease, we are often obliged to try several remedies before we hit upon the right; the symptoms being insufficient to direct us to a proper choice. The only general rule I have learned, in treating morbid irritability, is to distinguish it into

Irritability with nervous energy	{	unaltered, diminished, increased;
----------------------------------	---	---

remembering that the same degree of irritability attending diminished nervous energy in fevers, is much more dangerous than where nervous energy is increased; as the pulse table will sufficiently shew. By this method we have some plan to proceed upon; and though we shall not always succeed immediately in relieving the patient, yet, I believe, we shall commonly avoid doing harm. In the first instance, opium and other sedatives, which the particulars of the case may seem to indicate, may be given without apprehensions of danger

danger; provided we remember that the temperature of body, in this instance, is commonly in a middle state; and that either hot or cold remedies should be avoided, and preference given to those which are a mixture of both.

When nervous energy is diminished, opium is injurious. The native balsams, foetid gums, essential oils, and all those warming remedies, which increase the vigour of the nerves in general, do service. And where nervous energy is increased, small doses of laudanum and antiphlogistics joined, are preferable to other treatment. However, there are some peculiarities in constitutions that require particular remedies: thus, though the balsam of Peru, for instance, frequently gives relief, when applied to pale sensible ulcers, in leucophlegmatic habits, yet it sometimes happens, without any apparent cause, that it gives exquisite pain, and we are obliged to use native balsams, divested of their heating

heating properties, or such other applications as we find best agree with the patient. Just so it is in internal complaints; for in hystERIC cases do not camphor, castor, valerian, asafoetida, balsam of Peru, &c. succeed by turns? Such is the difference in the nature of irritability, that a single grain of mercury will salivate some persons, whereas ten times that quantity will have no such effect in others. When it happens in the viscera from obstruction, one kind brings on hypochondriacal symptoms, another madness, another hysterics, and a fourth the ague, &c. and all different from that brought on by the canine poison; which otherwise might be treated with the same degree of certainty as other complaints.

Hitherto we have spoken of general irritability, and there are some peculiarities in local irritability that deserve notice.

It is agreed, that an inflamed part becomes more irritable, and when repeated

Irritability of parts increased from repeated inflammation.

edly inflamed, I observe the irritability is at each time increased and remains long afterward, though the inflammation entirely disappears: without due attention is paid to these particulars, much mischief may be done by topical applications. I might, indeed, bring a multiplicity of instances in support of this assertion; but a few will be sufficient for the purpose.

CASE I.

A man had an ulcerated leg, which had been very frequently inflamed by an erysipelas, that came on in consequence of absorbed matter. When the inflammation had disappeared some time, the surgeon dressed the ulcer, which was foul, with a digestive composed of yellow basilicon and precipitate; upon which, in a few hours, a most violent inflammation seized the whole leg, and brought on some alarming symptoms that time and sedatives relieved.

CASE II.

Another man had much inflammation and various abscesses in his thigh, from a com-

compound fracture. When these were over and new flesh arose above the level of the ulcer, the surgeon applied precipitate, which brought on fresh inflammation, rigors, abscess, and a hectic fever; but, upon the matter being discharged, he recovered under milder treatment.

A lady had a perpetual blister continued CASE III.
many weeks upon her neck, on account of a pain in her head; which brought on such a degree of irritability in the ulcer, that it could not be healed by the common mode of dressing, though not the least degree of inflammation appeared. Even the most simple ointments gave exquisite pain, and occasioned a discharge of lymph; but upon double linen cloths being wet in cold water, and kept moist upon the part, she was cured. These are sufficient hints to avoid cautiously whatever may irritate under such circumstances, which are often to be met with in the practice of medical surgery. Nor are these remarks to be confined

to external disorders; for when the lungs or liver, &c. have been repeatedly inflamed, they are inflamed again upon the slightest accident; and, like external disorders under this predicament, require the most gentle treatment. Is it not probably owing to the same cause, that when the habit of body has been rendered more irritable by mercury, it is afterward, though at a considerable distance of time, more easily affected by this mineral? Such considerations may prevent our mistaking one disease for another, as happened in the fourth example in our Introduction. And I am apprehensive, that fault has frequently be found with the fluids, when the solid parts of the body ought to have been principally attended to in the cure.

ON THE
PULSE.

P 2

THE
J. S. E.

O N
T H E P U L S E.

THE heart seems to contract in proportion as it is more or less affected by a stimulus. The pulse is full or small, according to the quantity of blood forced into the arteries: slow, quick, strong, or weak, according to the systole of the heart; and hard, or soft, according to the tension of the arteries: wherefore the pulse, in most cases, points out the degree of irritability, whether increased or diminished; the quantity of blood moving in the vessels; the motion and force of the heart, and the state of the arteries. But though inflammatory irritability, may be accurately estimated by the pulse, yet as it terminates differently under different circum-

stances, we will form a pulse table, upon Dr. Heberden's plan, which will lead us to consider the disease instead of a symptom. For though "the pulse is in many cases, a useful index of the state of the health, yet it is no certain one in all; and without due regard to other signs, it may mislead us." But we must first observe, that the pulse of children, "under two years old, should be felt while they are asleep* : in adults, after conversing with them, and then keeping the finger upon the artery a considerable time together, to prevent our being deceived by a quickness of the pulse, commonly brought on by some degree of agitation in the mind of the patient †."

* Dr. Heberden,

† Hippocrates.

A PULSE TABLE,

Drawn in part from Dr. HEBERDEN: MED. TRANS. vol. ii.

STATE of Children's PULSE in Health.

Just born	130 to 140
1st year	108 to 120
2d year	90 to 100
3d year	80 to 108
4th 5th and 6th	Nearly ib.
7th	72 or more
12th often	70

IN DISEASES.

INFLAMMATORY CLASS.

1. Inflammatory fever } 144 has ended in death.
two years old }
- Do four years old 156 } have recovered.
Do nine years old 152 }
2. Dentition - - 120 or more not dangerous, if convulsions do not interfere.

MISCELLANEOUS CLASS.

3. If quickened so as to exceed the utmost healthy limits by } 10 { Indication of some disorder.
4. A very slight fever } 140 to 160 without danger.
in the first year }
- Worm fever - - 100 or 120 not dangerous.
5. Signs of considerable illness, and below the lowest limits of natural standard } 15 or 20 { Indication of brain being affected.

STATE of the PULSE of Adults in Health.

A little below	60 to 80	{ the pulse of women sometimes more.
Sometimes near	90	
Increase after a full meal }	10 or 12	
P 4		IN

IN DISEASES.

INFLAMMATORY CLASS.

1. In inflammatory fever fewer than } 100 } danger generally not very great.
- Beginning of danger } 120 } seldom exceeds, in this instance, according to HEBERDEN, without deliriousness and death.
2. Hectic fever from ill conditioned ulcers, or from scirrhus disorders in any part of the viscera, in an inflamed state. } 90 to 110 } continues for many months.
3. External inflammation, symptomatic fever attending wounds, paronychia maligna, &c. } 120 or 130 } no ways dangerous.
4. Erysipelas - - - 120 or 130 } d^o, unless the head is much affected.
5. Erysipelas, where the head and face are greatly affected, though only at } 50 } may end in death.
6. Acute Rheumatism 120 } often without any sort of danger.
7. Gout - - - 120 } d^o, if the head and stomach are unaffected.
8. In injuries penetrating the skull, soft, and at } 50 or 60 } yet the brain may be violently injured, and the event exceeding hazardous. The membranes are commonly inflamed in a state of tension, may suppurate, and if the matter is confined, death be the consequence.
9. In injuries of the head lacerated at } 100 }

- | | | |
|---|------------|--|
| 10. If considerable laceration in the cortical part of the brain | } 50 or 60 | { has recovered, where the matter arising could be freely discharged through a proper opening. |
| 11. In peripneumonies, from a wound, &c. in the lungs, when oppressed and under | } 60 | { there is great danger. |
| 12. D ^o , from internal cause | } 60 | { ditto. |
| 13. In violent bruises of the abdomen, with inward dull pain, though under | } 100 | { death will often happen. |
| 14. In inflammation of the abdominal viscera, from any cause, with distention, tho' under | } 100 | { great danger. |

P U T R I D C L A S S .

- | | | |
|---|-------|--|
| 15. In putrid fevers, occasioned by contused wounds | } 100 | { not very alarming. |
| 16. D ^o , when at - - | 120 | { May recover if absorption of putrid matter, in large quantity, can be prevented. If not, there is great danger of a fatal termination. |
| 17. Putrid fever, from contagion, in an advanced stage. | } 120 | { Often terminate in death. |

MISCELLANEOUS CLASS.

- | | | |
|---|------------|---|
| 18. If quickened so as to exceed the utmost healthy limits by | 10 | { Indication of some little disorder. |
| 19. In low fevers, and in exhausted old men, often below | 100 and 90 | { If attended with want of sleep and restlessness, and a parched tongue, end in death without comatous or lethargic symptoms. |
| 20. Comatous affections in infectious fevers at | 84 | { Sign of brain being affected. |
| 21. Asthmatic people seized with uncommon bad fit | 120 | { very rarely recover. |
| 22. Before critical swelling or deposit of matter | 150 | { And yet a recovery happens. |
| 23. In deep seated pains in the head, with general weakness, and comatous affections, though soft, open, and unaffected at | 50 or 60 | { end often in death. |
| 24. Comatous fevers with deliriousness, rapid loss of appetite and strength, sleeplessness, quickness of breathing, and great thirst. | 60 | { very little hope. |

PUER.

PUERPERAL FEVERS.

- | | | |
|--|-------|--|
| 25. Milk fever, with
turgid breasts. | } 120 | not dangerous. |
| 26. In puerperal fevers,
from inflammation
of the uterus or vis-
cera, accompanied
with pain in the ab-
domen, and flacid
breasts. | } 120 | { May recover, if as-
sistance is called in
time. Tho' more
die than recover. |
| 27. D ^o , when weak and
ichorous stools are
frequently discharg-
ed, | } 120 | { exceeding danger-
ous. The ichorous
stools being a sign
that the stagnating
fluids are become
acid and capable
of dissolving the
viscera. |
| 28. D ^o , from the ab-
sorption of putrid
matter from the u-
terus, | } 120 | { exceeding danger-
ous; if more fre-
quent, seldom re-
cover. |

GENERAL

GENERAL OBSERVATIONS.

I. "THIRST, quickness of breathing, averfeness from their food, and, above all, the want of sleep, enable us better than the pulse to judge of the degree of fever in infants."

II. Heat and a quickened pulse, accompanying pain, are signs of local inflammation.

III. I agree with Dr. Heberden, that such trifling causes will occasion intermitting pulses; and that they are not worth regarding in any illness, unless attended with other bad signs of more moment. Dr. Solano affirms an intermitting pulse, when not habitual, to be the sign of a critical diarrhoea, where there is a strength sufficient to perform a crisis; but this I have not seen verified in my own practice, or that of other physicians.

IV. It is, I believe, true that a quickened pulse more certainly denotes danger
5 than

than a natural one does security, where there are ulcers, or where disorders of the viscera are suspected; my observations corresponding with those made by Dr. Heberden, that persons sometimes die of cancerous ulcers of the anus, testicles, prostate gland, and of almost all the viscera, without ever shewing any preternatural quickness of the pulse.

V. "In an illness where the pulse all at once becomes quiet, from being feverishly quick, while all the other bad signs are aggravated, it is a proof, not of the decrease of the disorder, but of the lessened irritableness of the patient, the disease being translated to the brain; and a palsy, apoplexy, or death is to be apprehended."

VI. If the pulse from being quick, hard, and contracted, becomes soft, open and more slow, with other favourable symptoms, a recovery may be expected.

VII.

VII. When the new granulations, in fores, look healthy and vigorous, a quickness in the pulse, though at 120, is not at all alarming.

VIII. The aspect of the ulcer, in injuries of the head, is more to be depended upon than the pulse.

IX. From the foregoing table it is evident, that a quick pulse does not denote equal danger in inflammatory as in putrid diseases ; owing probably to the cause assigned in the Dissertation on Irritability in general.

X. Much more about the pulse may be found in Hoffman, by those who will be at the trouble of reading him.

ON THE
NATURE AND CURE
OF
F E V E R;

BEING A SHORT PRACTICAL ABSTRACT,

WITH ADDITIONS, FROM AN
ESSAY TOWARD AN IMPROVEMENT
IN

The CURE of those DISEASES which are the
CAUSE of FEVERS.

THE CURATIVE AND PREVENTIVE
TREATMENT OF THE
DISEASES OF THE
LUNGS

NATURAL AND CURATIVE

OF
THE
LUNGS

BEING A SHORT PRACTICAL ABSTRACT

OF THE

ART OF TREATING AN IMPROVEMENT

IN

THE CURATIVE AND PREVENTIVE

CAUSE OF LUNG

ON THE
NATURE AND CURE

F E V E R.

THAT fever is not an effort of nature has already been shewn *, and it will hereafter appear, from plain and simple facts, that it is an accumulation of preternatural heat or fire, arising from various causes; that it is an impediment to nature, and a most dangerous symptom; that the practice of making use of it, as an instrument to cure diseases, has destroyed more people than the sword; that it ought to be extinguished as soon as possible, to prevent fatal consequences, as it is frequently the fever, and not the disease, which kills the patient: and we agree in

* Introduction.

Q

opinion

opinion with Rhazes, that to omit the *extinction* of the fire, is to suffer the patient to run headlong to destruction.

Now removing the cause of fever in time will often produce this effect, of which we shall hereafter treat in their proper places ; but this cannot always so soon be effected as might be wished, and the *fever itself* must be subdued, or kept under, by a proper degree of cold, as the most certain antidote to heat ; that nature may be at liberty to free herself from the disease, and medicines have their proper effect without interruption. For this purpose, the patient ought to be kept in a spacious room where he can draw a great deal of pure cool air, and be very lightly covered, so as not to be suffocated by many clothes. His bowels should be kept open by gentle cooling purges ; and loss of blood in some instances, which we shall hereafter particularize, will be necessary. Medicines should be given, which are ca-

pable of abating heat, by an innate cooling quality; of which kind are *nitre*, the common *saline draughts*, made of *juice of lemon*, and *salt of wormwood*, &c. *regenerated tartar*, and the like: for though these remedies may have other properties, yet they abate heat by immediately communicating coldness to the nerves. For the same reason, the patient should drink cold water, or cold toast in water, in proportion to the degree of heat; the regimen should agree with the extinguishing plan, and where excessive heat makes it necessary, the windows and doors of the chamber should be set open, that the patient may be sufficiently cooled by a free currency of air.

The above doctrine regards only fevers, in which nervous energy is increased, such as those brought on by any kind of simple inflammation; but where nervous energy is reduced lower than it ought to be, it will be necessary to support it, and to

extinguish the fever by cold at the same time : for which purpose, as the case may require, antiseptic or other cordials, either with or without cooling medicines, as the patient's strength and heat demand, may be joined. In slow nervous fevers, and in all contagious fevers, the pulse and symptoms of nervous oppression, sooner or later, point out that the vital powers are weakened and require support. Every medical reader knows that the ancients gave alexipharmics as antidotes to the poison, which they supposed occasioned the disease : and though their theory might not be perfectly true, respecting the effect of their remedies, yet their practice seems to have been right ; as they might often support nervous energy, and enable the patient to get through the complaint. A young woman was seized with an epidemic fever ; nervous power seemed to be almost destroyed by the sedative *mi-asmata* which occasioned the disease ; her pulse,

CASE I.

pulse, though quicker than usual, was under a hundred; her tongue was not very dry, she was delirious, a constant tremor attended, and the common offices of nature were involuntary. Her room was kept full of pure cold air. She took the *decoc-tum sacrum* of Fuller, and drank barley-water, &c. and recovered. Nor is this the only instance of many I have seen, where this remedy (which theory kicked out of doors) had the same desirable effect under like circumstances: and where less warming medicines are sufficient, is not the *pulvis contrayervæ* daily used with success upon the same principles? A hus- CASE II.
bandman was ill of a slow nervous fever, that raged in the neighbourhood, and had been delirious some days when I first saw him: his pulse was weak, about ninety; his strength much diminished, and his heat not great. I ordered his room to be kept cool, his bowels to be opened by a clyster, and that he should take a glass of Madeira

wine every three or four hours, drinking toast and water, and wine betwixt whiles : by which treatment his delirium left him, and he recovered. This is no new practice, for Hippocrates in a similar instance, gave wine and water twice a day, but the coldest water the rest of the time. Indeed, I have been led to think there is not any remedy equal to wine, through the whole of this kind of fever ; having ordered it to very many with the most desirable success, after clearing the *primæ viæ* with proper evacuants. This, I think, is the first step to be taken in fevers brought on by contagion ; as the *miasmata*, producing the disease, seem first to affect this canal, and are often effectually removed by vomits : which hints are sufficient to point out our intention, and in the Essay on Fevers this matter is more fully discussed.

A
T R E A T I S E
O N
I N F L A M M A T I O N ,
A N D
I T S C O N S E Q U E N C E S .

Q4

THE BATTLE

OF

INFLAMMATION

AND

ITS CONSEQUENCES

P R E F A C E.

FROM the multiplicity of treatises written upon that subject, it might be imagined the doctrine of inflammation must be now thoroughly established; but whenever any subject *admits* of a diversity of opinion, it cannot be rightly understood: for, I believe, it will be allowed me, that wherever truth appears, it will carry self-conviction along with it, so as to remove all possible ground of controversy. Thus, notwithstanding, the principal writers on inflammation subscribe to a self-evident truth, that irritation is one cause of this disease; yet, as they entertain different sentiments as to the manner in which it brings about this effect, and how inflammation is caused, when external *stimuli* are not applied, its true nature seems not yet to be ascertained. I have, therefore, carefully revised my observations on the several appearances in this complaint, and
beg

beg leave to offer the result of them, to those whose minds are open to conviction, and ready to receive truth. I will just premise, that by *lymphatic* and *capillary vessels*, are meant those lateral lymphatics, which have an immediate communication with the artereal system, and carry lymph from the blood. The absorbent system is a different order of vessels; and the fluids, which pass through them, move in a different direction.

CHAP.

C H A P. I.

ON INFLAMMATION IN GENERAL.

THE Greeks very properly gave the name of φλεγμονη or φλογωσις, from Inflam-
tion de-
fined.

φλεγω, *uro*, to burn, to the disease the English call inflammation; because it is the burning or a fiery heat in the affected part, and not redness, pain, or tumor, which some have taken into their definition, which characterises the complaint. Redness, pain, and tumor, are sometimes long found in affected parts, without any signs of their being inflamed. Upon impartial enquiry, I believe, it will appear they are only attending symptoms on inflammation; and that neither the red blood passing through the lymphatic vessels (whether moving slow or quick), pain, tumor, or spasm are capable of producing preternatural

Blood not
the cause
of it.

natural heat: and that inflammation is in all instances a nervous affection, independent of these causes.

Proof,

Blood having escaped out of its vessels into the interstices of the fibres, or sometimes venal blood stagnating in the extremities of the veins, gives redness to the eye, but is distinguished from inflammation by its being destitute of preternatural heat and its consequences; and by its going off spontaneously without disturbance. Nor does any kind of extravasated blood, while it remains free from acrimony, or venal blood confined in the narrowest extremities of the veins, ever produce this disease. Instances of the former we daily see in contusions, and the latter is sometimes manifested in tumors preventing a return of the venal blood to the heart.

A butcher once sent me a sheep's bladder uncommonly large; its coats were thicker than usual, and all the veins were

so

so distended with blood, that even the membranous fibres appeared to be a set of vessels filled with this fluid; yet this sheep must have been free from inflammation and pain, because it was exceedingly fat when killed. Upon examination, I found an indolent tumor about the neck of the bladder, which pressing upon the principal veins, prevented the blood from returning: but upon putting the bladder into water, to preserve it for farther enquiry, the blood was washed out of the veins, and it nearly regained its natural colour.

In a varix of the human bladder, the patient is free from inflammation, because he has not any pain or fever. I have opened bodies that had been afflicted with this disease, which had no other symptom, while living, than excessive weakness, from a constant and violent discharge of venal blood; and found the bladder in a state similar to that described. A varix in the legs, where the blood stagnates in the
ex-

extremities of the veins, is also unaccompanied with inflammation, unless it is so great as to cause considerable obstruction in the neighbouring parts. Nor does *arterial blood* by entering the lymphatics, though it gives redness, seem to bring on any greater disturbance than blood which is extravasated or obstructed in the extremities of the veins.

If a cupping-glass be applied to the skin, we see the part is swelled and becomes red, from arterial blood rushing into vessels which do not usually carry blood, yet without inflammation. Fomentations may be applied till the part becomes red, from the same cause, and with the same consequences. Various kinds of violent exercise will force arterial blood into the lymphatics, without giving heat or pain; and I have known a vomit force blood into the lymphatics of the *tunica conjunctiva*, with little or no inconvenience, though the eye look very red.

In

In legs which have been weakened with ulcers, especially in corpulent people, it is very common for them to become red, from arterial blood forcing its way into the lymphatics: they frequently look equally red with parts that are inflamed. Upon pressing them with a finger the skin acquires its natural colour, in the same manner as in an erysipelas; but upon removing the pressure, the blood immediately rushes again into the cutaneous vessels, and yet the legs are perfectly cool, and free of pain. In the *ectropium*, the residence of the arterial blood in the lymphatics of the *tunica conjunctiva* is very obvious, often for many years together, without inflammation: and in all these instances the blood escapes into its proper channel without disturbance. Lastly, in an *aneurysm*, and an *ecchymosis*, does not the blood remain long without the least signs of its irritating? From all which may we not safely infer, that the blood,

blood, in its natural state, does not irritate sufficient to inflame, and that this disease is not caused by an *error loci* of its red globules?

Pain not
the cause
of inflam-
mation.

Pain also has, from the days of Hippocrates, been generally supposed to occasion inflammation*; particularly that arising from distraction, or distention of the nerves. But whoever scrutinizes this matter will have occasion to doubt the truth of this opinion. For though pain, perhaps, is always a consequence of local inflammation, yet there is not any evidence which proves, that it ever produces it. The nerves in the membranes, covering the bones, are often from disease put upon the stretch, and give most exquisite pain; but this pain is without the least inflam-

* The only writer, I know, who has mentioned any thing that has a tendency to contradict this opinion, is Dr. Heberden; who says, (Med. Transactions, vol. ii. p. 32.) "It is often supposed that great pain will quicken the pulse. I am more sure, that mere pain will not always do it, than I am that it will:" and he gives some instances to justify this opinion.

mation

mation or fever, till the obstructed fluids acquire acrimony, and irritate the nerves with which they come in contact. In white swellings of the joints, while the confined matter is free from acrimony, the pain is often great, and sometimes exquisite, for a great length of time from distension; and yet without inflammation or fever. But I have had ocular demonstration of the nerves upon the stretch, which gave me a clear idea of the effects thence produced beyond conjecture.

About twenty years ago, a collier, of Measham, had the upper part of his foot violently bruised and lacerated, by an accident in the coal pits. Tumor, inflammation, and suppuration followed, with the usual symptoms; which disappeared as digestion came on. Nevertheless, when the new flesh began to rise, a violent pain invaded his toes, and the under part of his foot adjoining to them, insomuch that he could neither get rest or sleep in any one posture,

R

posture,

posture, and yet was quite cool, and perfectly free from any symptom of inflammation. Opiates mitigated the pain, but it returned as violent as ever, when their effects ceased; nor could we, by any means, give him permanent relief, till the bruised membranes digested off, and discovered to us the cause of his sufferings. The muscles of a great part of his foot being left quite bare, the fasciculus of nerves, which goes to the lesser toes, was more exposed than could have been done by the nicest dissection; and a rising of flesh from the *extensor digitorum brevis*, made them form an arch, like the strings of a fiddle elevated by the bridge. Upon still raising them with the scissars point, in order to divide them, the pain encreased; but upon cutting them through, it immediately ceased, and never returned. Easing pain by dividing nerves in a state of tension, is a very common practice in surgery; but I have chosen this case as perfectly

perfectly free from obscurity, and fully capable of illustrating the subject by its simplicity. It is well known the sciatica affects people several weeks together without shewing the least sign of inflammation. I very lately attended a gentleman CASE II. who had a most violent pain in his back, which extended through the lower part of the abdomen to his thighs, for four days together; but without either occasioning heat or altering the pulse: and do not people frequently undergo great pain in the head, for a considerable time, without the least symptom of fever or inflammation? In the colic from lead, in the tooth-ach, in the passage of gall-stones through the gall-ducts, in stones passing the ureters into the bladder, and in many other internal diseases, the patient often undergoes the most excruciating pain for a great length of time, without inflammation: all which together, seem to prove, that pain itself is never the cause of this disease. It may be laid down as an infallible and most useful

A rule in
practice.

rule in practice, that pain accompanied with fever, always arises from inflammation; but when no febrile symptom appears, the cause is either spasm or nervous distension.

Perhaps it may be said, that irritation, which is a common cause of inflammation, always occasions more or less pain, and the subsequent inflammation is in consequence of the pain thus brought on. But how can such reasoning be supported, when it is evident from the cases selected, that the most exquisite pain produces no such effect? Beside it must be remembered, that it is irritation which gives pain, and not pain that irritates; for if pain was capable of irritating in such a manner as to bring on inflammation, it would increase this disease, and support itself when once produced, like a lighted candle which continues to burn, though the match which set it on fire is removed. Whereas the fact is directly contrary; for remove the
cause

cause of pain, and pain itself is incapable of keeping up inflammation. Irritating dressings applied to a sore, will bring on, and keep up, violent inflammation, so long as they are used; but upon removing them, all the troublesome symptoms disappear, and fairly evince, that it is the irritation and not the pain which produces the inflammation; and that though the pain be ever so great, it is incapable of supporting, and much less of producing the disease of which we are treating.

Now, though it may be proved by innumerable instances, that external irritation is one cause of inflammation, yet it must be observed, that different kinds of irritation produce different effects*. If we irritate the brain or nerves with a knife, by pricking with a needle, by compressing with a ligature, or by any other kind of irritation, which is sudden and of short continuance, spasms only are the

Irritation.

Different kinds of it produce different effects.

* See Haller on Irritability, p. 33.

consequence ; whereas corrosives bring on inflammation : and when we reflect, that a mote in the eye as certainly produces this disease, as those things which corrode, it will appear to follow, that inflammation is only brought on by that kind of irritation which keeps up a constant fretting of the nerves.

The manner of its causing inflammation not ascertained.

However, though it is plain this kind of irritation will cause inflammation, it does not so clearly appear from any thing yet written upon that subject, by what means this effect is produced : for though latter writers thinking that obstruction, without an irritation in the obstructed part, never occasions inflammation, have preferred the doctrine of irritation to the Boerhaavean doctrine of obstruction *, yet they have gone very little farther toward elucidating the point in question. They have only attempted to change the cause of heat in the affected part, from *attrition*

* See Van Sweit. Com. sect. 371.

to an increased *velocity*, or *impetus* in the blood ; without proving that an increased velocity *in the fluids* is capable of producing such an effect.

Some say inflammation is owing to an increased *alternate contraction* in the small vessels, whether arising from obstructing matter distracting their fibres, or acrid matter irritating them. Those who suppose a hot tumor cannot be formed in any part without an excessive great motion of the fluids, endeavour to prove that the small vessels, instead of being obstructed, become enlarged in inflamed parts ; and that the blood flows, both through veins and arteries, with an increased velocity, and occasions preternatural heat.

Different
opinions
about in-
flamma-
tion.

On the other hand, others, though they do not think obstruction is to be considered as the primary cause of inflammation, yet say, " It is, at the same time, sufficiently *probable*, that some degree of obstruction does take place, in every case

“ of inflammation ; and that the extremi-
“ ties of the arteries do not readily transmit
“ the unusual quantity of blood impelled
“ into them, by the increased action in
“ the course of these vessels.” They think
“ the phænomena of inflammation, red-
“ ness, heat, pain, and tumor, all concur
“ in shewing that there is an increased
“ impetus of the blood in the vessels of
“ the part affected, owing to an increased
“ action of the vessels of the part itself.”
And imagine “ inflammation may often
“ be explained in the following manner :
“ some causes of inequality in the distri-
“ bution of the blood, may throw an un-
“ usual quantity of it upon particular ves-
“ sels, to which it must necessarily prove
“ a stimulus. But, farther, it is probable,
“ the *vis medicatrix*, nature, increases still
“ more the action of these vessels, which
“ it effects by the formation of a spasm on
“ their extremities, as in all other febrile
“ diseases. A spasm, therefore, of the ex-
treme

“treme arteries, supporting an increased
“action in the course of the same, may be
“considered as the proximate cause of
“inflammation, at least in all cases not
“arising from direct *stimuli* applied.”

But whether these opinions are less hypothetical than the doctrine of Boerhaave, let us now consider: nor am I fearful of offending such respectable authority, though I differ from them in opinion; for being in search of truth, I know they will, with pleasure, embrace every unprejudiced attempt to discover it.

Supposing, what has never yet been proved, that there may be an increased alternate contraction in the small vessels; is this sufficient to produce the heat observable in inflamed parts, by increasing the heat of the blood? There never yet has been an experiment made capable of proving this circumstance. It is true, an increased motion of the *solids* will increase animal heat; but this increase of heat is

These
opinions
examined.

Alternate
contrac-
tion in the
small ves-
sels insuf-
ficient

very

to bring
on inflam-
mation, as
facts
prove.

very different from the heat of inflammation. If a man runs till he is exceeding hot, we feel in him a great increase of *natural heat*, but not any thing disagreeable to the touch; his skin remains soft, and open, and the heat spontaneously disappears without giving uneasiness. In the experiments made by Dr. Fordyce, in heated rooms *; the human heat was raised to one hundred degrees, and the pulse to one hundred and thirty-nine strokes in a minute; but without inflammation. In the chase, the active hunter often increases his natural heat to a great degree, for several hours together, without any detriment; because heat, in great quantity, is constantly discharged by the lungs, and by perspiration from the body. The hunted deer brings on himself, by increased motion excessive heat, and yet, on being rescued from death, he reposes himself, and without suffering lasting inconveni-

* Med. Comment. vol. iv. p. 269.

ence, soon recovers his former temperature of body and agility. Were an increased impetus in the blood to bring on inflammation, would not death frequently be the consequence of violent exercise? May we not therefore conclude, that nature, in her laws of the animal œconomy, has, by constantly discharging heat, provided against disease being the consequence of violent motion, except by accident? Wherefore an increase of *natural heat*, excited by extraordinary exercise, and inflammation, seem to be different things; yet should we even suppose them to be exactly the same, is the quantity of blood passing through an inflamed part equal to the degree of heat it possesses? Certainly it is not; for instance, in the little ulcer, of which we shall hereafter have occasion to speak, immediately following inoculation, the appearance of red blood bears no proportion to the degree of heat; and we believe the same rule will hold good in every inflammation.

Increased
natural
heat and
inflammation
different things.

If

Heat upon the inflamed part does not depend upon the velocity of the blood.

If the heat in the inflamed part depended upon the increased force and velocity of the blood passing through the small vessels, would it not, if a stimulus, when once set a going, continue its motion, notwithstanding the first cause of increased action was taken away? Is not the contrary certain? But there is no proof either of a brisker circulation, or of an increased action in the vessels of the inflamed part: all that has been said in support of this doctrine, having originated in conjecture, as a very slight experiment will evince. If we press the blood out of the lymphatics, in a simple inflammation of the skin, or in an erysipelas where the fever is not considerable, and out of the lymphatics where the part is become red from blood entering these vessels without inflammation; we shall see the circulation is not quicker in the inflamed than in the uninflamed part. Nor can the best glasses discover any action in them. The pulsation

tion we sometimes feel, is no evidence in favour of these vessels acting with increased force; because it is only discovered in abscesses, where there is considerable obstruction: and the blood meeting with unusual resistance in the larger vessels of the cellular membrane, passes through them with difficulty, and is hence more easily perceived. We shall presently mention several instances of inflammation, where it is manifest the motion of the blood, *and the action of the vessels*, must be diminished. Nor do redness, pain, tumor, and heat, evince the contrary. Redness, we have seen, will happen without any increased impetus of the blood; pain and tumor arise from distension, caused by obstructed fluids; and the heat will hereafter appear to arise from another cause.

When an unusual quantity of blood is thrown upon a particular part, it does not become a stimulus sufficient to inflame;

Blood in its natural state is incapable of producing inflammation.

as we learn, from instances taken notice of, where arterial blood enters the lymphatics without inconvenience : nor do I believe it has power, in any instance, to act as a stimulus, otherwise than by striking against the nerves ; because corrosives do not produce spasms*. By experiments, to be presently mentioned, it will appear, that it is not necessary the blood should be more irritating than pure water ; and, indeed, were it in a natural state capable of producing spasms on the extremities of the vessels, would not great inconvenience, almost constantly, attend the circulation ?

Of ob-
struction
in inflam-
ed parts.

In regard to obstruction in inflamed parts, I believe a few plain facts will make it pretty evident, that inflammation often happens without being accompanied with this circumstance : that the cause producing inflammation, frequently brings on obstruction, by inviting a flux of hu-

* See Haller on Irritability, sect. 2.

mours to, and overloading, the vessels of the affected part ; and that obstruction, in many instances, is the remote cause of this disease. In a simple inflammation of the skin, or in an erysipelas (the consequence of absorbed matter), especially upon the legs, when the skin is not much thickened or dilated ; in the beginning of common abscesses, and in many other instances, upon pressing the part with a finger, we perceive, from the motion of the blood, and from the neighbouring veins being fuller than ordinary, that the circulation is carried on without impediment : but where the irritating cause is very active, does not the subsequent swelling sometimes intercept the passage of the blood so much, as to bring on local dropsy, and even sponginess in the skin ? And have not we frequent instances, when the circulation is absolutely stopped by inflammation, that a local mortification is the consequence ? It cannot, therefore, be unreasonable

reasonable to suppose, that the degree of obstruction is in proportion to the flux brought upon the part, though the inflammation had not obstruction for its first cause; and that obstruction is frequently the remote cause, will presently appear.

Inflam-
mation does
not arise
from
spasm.

But, notwithstanding the opinion was first suggested by Hoffman, we cannot conceive inflammation to arise from a spasm of the extreme arteries, supporting an increased action in the course of them; because it originated in, and is only supported by, conjecture, and for the following reasons:

Reasons.

First. Because, inflammation happens to parts which seem never to be affected with spasms.

Secondly. Because, the extreme arteries are not subject to spasm, nor are they the seat of inflammation.

Thirdly. Because, spasms never produce inflammation.

Fourthly.

Fourthly. Because, the capillary vessels, in which the inflammation is said to be seated, appear to be destitute of action, and consequently not likely to be affected with spasm.

I. The skin is subject to inflammation; and yet, when irritated, nothing like a spasm appears *, either in the fibres of the skin itself, or in the vessels which belong to it: nor do we think any part of the body susceptible of spasms but muscular fibres, from which every part of the skin differs.

II. I do not remember one real fact being produced, capable of giving support to the opinion, that spasms of the extreme arteries ever take place. On the contrary, according to Haller's experiments, the arteries carrying red blood, are neither sensible nor irritable †; and daily experience evinces the truth of this observation,

* See Haller on Irritability, sect. 2.

† On Irritability, p. 27, and 41.

for neither any thing like spasm or pain is produced, when we inclose the arteries alone in a ligature; whereas when muscular fibres happen to be included, spasms are an immediate consequence.

It is said, indeed, that the arteries are all encircled with a muscular coat, which is of course irritable; that their systole is owing to this coat being stimulated by the blood passing from the ventricles of the heart; and the doctrine of nervous stricture, upon the extreme branches of the arteries, has in consequence arisen. But, notwithstanding much ingenious theory, and wrong conclusions drawn from anatomical experiments, have been employed to support this opinion, yet whoever examines into this matter by experiment, will, I think, be convinced, that the inward coat of an artery is a membrane *sui generis*, calculated by its smoothness to give facility to the passage of the blood; and
6 that

that nothing muscular appears in any of its coats.

A principal mark of a fibre being muscular is its power of contraction, upon irritation; and as none of the coats of an artery can be affected by irritation, it is to me very clear, that no part of them is muscular; or if they contract, from being irritated, why are they not made a hollow muscle like the heart? Beside, if we view the different coats of an artery with a good glass, they have not the appearance of any thing muscular. They are elastic, and have all the properties of elastic ligaments. Like elastic ligaments, they are incapable of being put into motion by a stimulus acting immediately upon them; and *all* their coats, in the same manner as elastic ligaments, preserve their elasticity after death, and undergo no alteration by boiling gently, or by macerating in spirit of wine*.

No part
of an ar-
tery mus-
cular.

Compr-
ed with
elastic li-
gaments.

* See Compend. Anat. à Fran. Nicholls, p. 26. lect. 2.

Though they may possibly have something in their structure peculiar to themselves, yet there is no other part of the body to which they bear any analogy. It seems owing to contraction taking place by elasticity, that the arteries are closed when divided, or when the blood ceases to flow through them; for their circular fibres contracting upon the innermost membranous coat, make it fill up, and entirely stop the passage through the vessel, which is very different from spasm, nor does nervous influence seem to interfere.

In truth, writers seem to have perplexed this part of physiology much, by labouring to prove, that irritability is essential to the arteries in promoting their contraction. But we must call to mind, that the muscular fibres, which are actuated to their office by a stimulus, are in general incapable of being *lengthened suddenly by distention*; and that, being irritated, they
shorten

shorten themselves, and spontaneously return again to their natural state, when the irritating cause ceases to act. On the contrary, the fibres composing elastic ligaments, or the arteries which resemble them, do not perform any part of their office by being made shorter than their usual length; but are put into action from being *lengthened by distention*, and afterward return with the force, usual to elastic substances, to their former dimensions. So that there are no parts of the body which differ more in their action, than the arteries and the muscular fibres*. Nor is the cause of the systole of the arteries, and the cause of the contraction of the muscular fibres, any way similar.

* Perhaps the sphincter muscles may be opposed to this doctrine; but it ought to be observed, that they differ very much from muscular fibres in general, and seemingly are of a peculiar structure: they bear, indeed, some analogy to the elastic ligaments, but are destitute of most of the properties belonging to them.

There is not any writer, I am acquainted with, who ever supposes a stimulus to interfere in restoring the muscular fibres from contraction to their natural state. The ligament in the neck of brutes, like the elastic vegetable, returns to its usual length, when the distending cause ceases to act, without being excited to this office by any stimulus. Are not the coats of the arteries of the same nature? They give way to the blood when expelled from the heart, and afterward assist in pressing it forward, by a natural power of returning to their former shape; and for this office, irritability in them is not necessary. Nor does the redness, occasioned by irritating topics, form any analogy in favour of the large arteries being irritable; because the lymphatics are very different kind of vessels: their nerves are more exposed, and more liable to be affected by an irritating cause, and yet, even in this instance,

instance, nervous stricture, or any motion in them, is not the consequence.

If then the arteries, carrying blood, are void of muscular fibres, they cannot be irritated so as to be affected with spasms ; or even if they produced spasms, upon being affected with the causes commonly bringing on spasms in the muscular fibres, an immediate discharge would not be the effect of irritating substances applied to the skin. Upon irritating lymphatics, they even admit, and are loaded with, red blood ; whereas did a spasm take place, it would be prevented from entering into them, and they would become pale and diminished in size. But the motion of the blood through the inflamed part, when not prevented by obstruction, puts it beyond doubt, that spasm does not any way assist in bringing on this disease ; and whoever attends to what was before said, we apprehend will be satisfied in this matter. Indeed, I firmly believe, the lym-

And cannot be affected so as to produce spasms.

phatics have not any power of closing themselves; because in wounds, unless their sides are pressed together by the subsequent swelling, they continue to discharge lymph from the very beginning to the end of the cure: for the reddish liquor which appears, two or three hours after the wound is made, does not come from arteries not close contracted, as has generally been supposed, but from lymphatic vessels; and acquires its redness by dissolving and washing away the blood which remains in, or drains into, the wound after the dressings are applied.

Perhaps many diseases, which, because they are immediately relieved by nervous medicines, are supposed to arise from a spasm of the small vessels, may be thought to invalidate these observations; but till it is proved, that the arteries are affected with spasms, this mode of reasoning will hold good: nor is it sufficiently clear, that spasms are so frequent in nervous diseases

Spasms
may not
so fre-
quently
occur as
has been
imagined.

as

as is imagined. For instance, the immediate relief often given in a fit of the nervous asthma, by gum ammoniacum, asafoetida, and such kind of medicines, may occasion an opinion that the disease takes its rise from spasm; but this amounts to nothing more than conjecture: and, if we except the asthma arising from a spasm of the diaphragm, we shall account for the nature of the complaint, and the effects of these medicines, with equal satisfaction, if we suppose the nerves, in consequence of diseases, are incapable of doing their office, and that the parts they serve are of course in the same predicament. For a difficulty of breathing may arise from these causes, and ease be the immediate consequence of those remedies which increase nervous energy. If by spasm, a contraction only, without any alternate motion of the small vessels, is meant, it still is not any thing in favour of its being the proximate cause of inflammation, by causing an increased *impe-*

tus

tus of the blood in the vessels of the affected part; because, if the vessels are in a state of contraction, their action must cease instead of being increased. Beside, if there were to be a spasm of the extreme vessels, it would confine the blood to the larger arteries; and in what manner could the vessels act upon, or quicken the motion of, the fluids, when there are none in the part?

Spasm and
inflammation differ-
ent diseases.

Indeed it appears to me, that spasm and inflammation are opposite diseases; for is not inflammation, or a tendency to inflammation, the cure of spasm? Blisters, sinapisms, essential oils, &c. seem to produce their good effects in spasmodic diseases by bringing on inflammation, or increasing heat. Are not all the spastic affections, of which we are certain, relieved by those remedies, whether inwardly or outwardly applied, which add warmth or vigour to the nerves? If heat is the abater of spasm, must not fever always put an end to inflammation,

flammation, if brought on by spasm? And yet it is a certain fact, that inflammation is increased by increased heat.

But it has been said, that cold air, by constringing the extremities of the arteries, brings on inflammation; and why may not a stricture from spasm produce the same effect? To this we answer, because they are no way similar; and that, so far as it can be made to prove any thing, it proves the direct contrary. For cold air, when it brings on inflammation, makes its way into the affected part, destroys or lessens nervous energy, instead of constringing it; brings on a swelling, and the inflammation takes place only beyond the parts which are obstructed, which are pale and lifeless: and would not they, instead of being inflamed, appear equally lifeless were the extreme vessels rendered impervious to the blood by a stricture from spasm? In parts, invaded with spasms, perspiration is not obstructed,

obstructed, no continued swelling appears, nor do they inflame; whereas when cold acts with force sufficient to bring on inflammation, it obstructs perspiration, and occasions an accumulation of heat in vessels less injured, bordering upon the obstruction. Antispasmodics either mitigate or remove spasms, but inflammation from cold does not give way to their use, unless we suppose neutral salts to be of this class. Hoffman, indeed, if I remember right, was of this opinion; and because they were serviceable in fevers, which he *supposed* arose from spasm, numbered them among the antispasmodics; but this was only squaring practice to theory, and most likely ascribing effects to these remedies which they never produce.

Lastly, it may be asked, if you do not allow of spasm in the extreme arteries, in what manner do you account for the preternatural heat in the hot fit of an intermitting fever? To which we might fairly
answer,

answer, intermitting fevers are another species of disease, as is evident from their not being accompanied with local inflammation. And whether we are able or not to account for this symptom, we may observe, that there is not yet any proof of spasms being the cause of it; or that this disease, in any stage, is accompanied with spasm or nervous constriction: for nervous constriction or spasm, as we have before observed, requires nervous energy to occasion contraction in the muscular fibres; and it is manifest, from the rigor itself, that at the onset of every fit in this fever, nervous energy is not only lessened but almost destroyed for a time*, and that the nerves

Spasm
does not
interfere
in inter-
mitting
fevers.

* It has long been observed, that those who die in intermitting fevers, die in the cold fit; owing, no doubt, to nervous affection: and where the habit is very irritable and debilitated, the very first impression made in the beginning of other fevers is sometimes so great, that the fate of the patient is certain; the violence of the rigor evidently shewing that the injury the nervous system receives is irrecoverable,

have

In these disorders there is an increased or preternatural irritability.

In what manner the fit is brought on.

have not power to act with force sufficient to effect any contraction. The cause of intermitting fevers clearly brings on preternatural irritability in the habit *; and the nerves being thus rendered susceptible of the least impression, are so affected for a time by the cause bringing on the rigor, as to have a tendency toward death: add to this, that being rendered in-

* If we give a dose of laudanum about half an hour before the coming on of the fit, we frequently prevent it; and if we take a view of the remedies which cure intermitting fevers, we shall discover that they all have a power of lessening the irritability of the solids, and thus render the nerves incapable of being affected by the cause which excites the fit. If taking off increased irritability is the cure of intermitting fevers, increased irritability must always exist in this disorder. However, the cause of this irritability must first be removed, otherwise sedatives will prove insufficient; and on this account due attention must be paid to the state of the abdomen. We have already hinted, that all agues arise from an increased irritability of the abdominal viscera, which extends itself to the whole body; and are not the swelling of the spleen, hardness of the belly, the use of vomits, and the principal part of the cure depending often upon relieving an obstructed viscera, demonstrative proofs of the truth of this doctrine?

capable

capable of doing their office, neither blood nor heat is carried to the surface of the body, which of course becomes cold, pale, and shrinks inward. But as the cause producing this effect goes off, the nerves gradually begin to exert themselves again, and the blood, &c. return to their usual channels; whence the succeeding heat being confined, produces a temporary fever, which disappears upon the nerves having regained their usual power: for the extreme arteries being enabled to admit the fluids, perspiration comes on, and the usual temperature of the body is restored.

Dr. James Lind, in his Treatise on the Fen-fever, reckons the power of the sun and moon amongst the exciting causes of this disorder. He says, "The power
" which they have at Bengal to make
" those relapse who have had it, is truly
" amazing; and there are so many in-
" stances of this, and it is so well known
" at

The power of the sun and moon in this disorder.

“at Bengal, that it is enough to have mentioned it.” His own practice has furnished him with several strong instances, which he relates in support of this opinion; and he says many more might be collected in every country betwixt the tropics. If writers are not mistaken, there are many instances upon record of the influence of the sun and moon in bringing on, at least, many of the symptoms of diseases in this island *; and if the moon has that effect ascribed to it, in raising the tides, it is not unreasonable to suppose, that it may have some effect upon the human body, when rendered more susceptible of feeling by a particular state of the nerves. Especially if what some have asserted be true, that tides are not confined to the waters, but that there is also a tide in the air; for a particular kind of air, under the state of nerves described, will often bring on this disorder.

* Dr. Mead on the Influence of the Sun and Moon.

I have known a sudden exposure to the blast of a north-east wind, instantly bring on a rigor; and a single fit of an intermitting fever in a person lately cured of this disease, in whom the increased irritability of the nerves was not entirely removed; as his being susceptible of the least alteration in the air, sufficiently evinced. Under the same predicament, I have also been witness to a cold stream of air from a river renewing the ague. The patient's description was, that walking in a meadow he felt a damp cold air come upon him, from an adjoining river: a chillness first, then a rigor, and afterward a hot fit, &c. ensued; nor did the disease terminate in one fit, but he was again forced to take the bark to accomplish a cure. So very irritable are people often in agues*, that it is not uncommon for them to be affected much with high winds, though they are even in a warm bed. The reason of a

Proof of
external
agents
bringing
on a rigor
in inter-
mitting
fevers.

*. See Dissertation on Irritability in general.

Proofs
shewing
that an in-
creased
irritabi-
lity sub-
jects the
patient to
rigor,
&c.

rigor when a deposit of matter happens, seems to be the great degree of irritability people at that time possess *; and, I am certain, an increased irritability accompanying inflamed ulcers, subjects the patient to evening rigors. Precipitate was applied to an ulcer, an inflammation ensued, and the patient had for several days, while the inflammation remained, a rigor at a certain time: I have seen inflammation bring on a regular intermittent, which was removed by curing the local complaint. Felix Whurts †, and many other writers, have long since spoken of the effects of the moon upon sores; and if the state of the air above mentioned, under particular states of irritability, could bring on a rigor, &c. by affecting the nerves; why not air-tides, actuated by the moon, at certain periods, produce a similar effect? Indeed, there seems to me, not to be any doubt but ex-

* See Pulse Table.

† Chap. xv.

ternal agents, capable of lessening nervous energy, do bring on the rigor in fevers, and its consequences, when the body is in a state to be affected by them. The subject has not yet been sufficiently attended to in this part of the world, to determine about the point in question; and the labour and exactness required, may deter many from the undertaking; especially as knowing how to remove the increased irritability is sufficient for the physician's purpose. But if time and strict observation should ever confirm what has been said about the effects of the moon upon the human body, under her different motions, it may explain many things, in the nature of diseases, not at present understood.

III. Beside, even if the extreme arteries were liable to be affected with spasm; we have no reason, from experience, to conclude, that spasm will bring on inflammation; because we constantly see violent

Spasmodic diseases are not attended with inflammation.

spasmodic disorders exist for a great length of time without one symptom of inflammation. This is exceeding common in pains of the side, in after-pains, and in spasmodic diseases of the viscera, &c. In the *tetanus* is not every muscular fibre in the body in a spastic state, and yet without inflammation? I have seen a young woman afflicted, two years together, with the *hieranofus*, that rendered her insensible, and kept the muscular fibres of the whole body constantly, more or less, in a state of contraction, without ever having, as I could discover, any quickness in her pulse, or any signs of inflammation. Nor do I remember ever seeing a case truly spasmodic which brought on that disease. Certainly, if spasms had any disposition to produce inflammation, it would be no uncommon attendant in the cases we have mentioned: and in whatever view we examine them, they seem foreign to our present subject, and lead to the use
of

of antispasmodics, where different kind of remedies are more proper.

IV. Haller says*, "Upon examining
" the circulation in animals, with the mi-
" croscope, I have never observed any
" contraction in the arteries. I have viewed
" the circulation for whole hours in fishes
" and frogs, and, during the whole time,
" the sides of the vessel remained as quiet
" as those of the tube with which I examin-
" ed them." All the experiments I have
made of this kind, respecting the capillary
vessels, perfectly agree with the observa-
tions of this celebrated writer; and when
I see a globule of blood squeezed into an
oblong form, in passing through a particu-
lar part of a small vessel, it seems perfect-
ly clear that its sides do not move or give
way. From all which reflections and ex-
periments, from the construction of the
arteries being different from that of the
heart, and from irritability in them being

* On Irritability, sect. 2,

useless; we are led to conclude that their *infide* is not irritable. We of course believe that all the theories which have supposed spasms to arise from their being irritated by the circulating blood, are fallacious; and that inflammation never originates in the blood-vessels while the blood remains in its natural state, unless from local injury: but let us see what farther instructions we can receive from nature.

The author's doctrine of inflammation.

I cannot think, with some modern writers, that the heat of the human body consists in the repeated action of the solids and fluids. I join those in opinion who think fire is elementary, and that it resides in all animal bodies *ab origine*; because wherever there is heat, I apprehend there is fire in action, and I am led to believe, that inflammation in every instance is wholly owing to an accumulation of animal fire.

The

The existence of *animal heat* cannot be denied ; and it seems to be equally true, that that kind of irritation which constantly frets the nerves, invites into the affected part a greater degree of this heat than common. It is universally admitted, that irritating matter occasions an unusual flow of red blood and lymph into the small vessels of the part upon which it acts ; because it is perceivable with the eye. And though we cannot see the arrival of an unusual quantity of heat, yet it is not less evident to the sense of feeling.

If we attend to the progress of inoculation, we shall discover, by applying a finger to the small puncture, where the variolous matter was inserted, a preternatural heat, and sensation of fire sufficient to prove that the infection has taken place, as soon as there is any appearance of morbid affection in the wound. Afterward, when a redness begins to shew itself, the pulse being perfectly calm, and the patient

as cool and temperate as possible, the heat is greater about the small ulcer, than can possibly arise from any motion in the adjacent vessels. Compare the appearance of blood in the lymphatic vessels round this ulcer, with the blood passing through the lymphatic vessels in the *tunica conjunctiva* of blear-eyed people ; and though the latter, for the most part, is a hundred times greater, yet there is no increased heat, because there is neither obstruction nor irritation. And when we reflect upon what has already been shewn, that an increased velocity of the blood does not bring on inflammation ; it will clearly appear that the preternatural heat in this instance, depends upon irritation alone, independent of any motion in the blood.

Irritation,
its effects.

Irritation then, in this instance, produces three distinct effects ; the inviting heat, blood, and lymph to the disordered part ; the accumulated blood and lymph producing distension, obstruction, redness, and pain ;

pain; and the accumulated heat, inflammation. But though we imagine this heat is brought by the nerves, blood, and all kinds of vessels and fibres, because they all are the residence of animal heat, yet, in some instances, the quantity of heat brought in the blood is only a small share, compared with that brought by the other parts; because in cases of great obstruction, a small quantity of blood only passes through the inflamed part; for, meeting with resistance, it escapes by the anastomosing arteries. But we will view this disease in a different light.

Suppose a person in perfect health, whose juices are free from acrimony, has a bandage made strait round his leg, without entirely intercepting the passage of the blood through the arteries; would not the parts both above and below the ligature, after some hours, first swell, then gradually become hotter, afterward red and painful? And if the stagnating fluids

con-

Instance
of obstruction
being the cause
of inflammation.

continue in the same state a considerable time, will they not either bring on suppuration or a mortification, according to the degree of obstruction and acrimony they have acquired?

Now obstruction is evidently the first and remote cause of inflammation in this instance, because it disappears upon the ligature being timely removed; and wherever there is obstruction, there cannot possibly be a brisk circulation through the part. Is not the passage of the blood every way intercepted by the bandage, and must not the vessels have much less action than when they are free from obstruction? I am certain I have seen great inflammation and suppuration brought on, all over the leg, in a simple fracture, where it was impossible for the blood to move with celerity, in consequence of a very tight bandage made by an ignorant bone-setter. In sprains, and violent contusions, the vessels are rendered incapable
of

of carrying on the circulation regularly; and obstruction and inflammation follow: and can there be a brisker circulation, or an increased impetus of the blood in vessels incapable of acting upon their contents? On the contrary, does not every successful attempt in restoring the vessels to their proper action, and promoting a brisker circulation through them, assist nature in accomplishing a cure?

If then neither a brisker circulation, nor an increased impetus of the blood in the vessels of the part, pain, spasm, or the blood itself, while it continues in its natural state, are capable of producing inflammation, the question is, in what manner does it arise in these instances? To which we may answer, perhaps from irritation happening in consequence of acute obstruction; from accumulated heat, or from confined juices acquiring acrimony: because there are seemingly no other causes than these to produce it. That

By what means it may bring about this effect.

con-

confined juices do acquire acrimony, is plain from the suppuration which sometimes follows; yet it may be doubted, whether they degenerate from health much, when excluded from the air in the short space of time in which the inflammation begins to appear: and if in the first stage they are incapable of irritating, either obstruction or accumulated heat, or both, must bring on the subsequent symptoms, though the acrimony of the fluids may afterward assist in increasing and supporting the disease.

Now one effect of obstruction is nervous distension; and we have seen from a plain fact, that mere nervous distension does not bring on inflammation. But where swelling is sudden, the nerves being put into a more irritable state than usual, they may be irritated by the impulse of the circulating blood against the obstructed part; or by the causes bringing on the obstruction, as fractured bones, &c. and what

what share accumulated heat itself has in this business, may be gathered from the following reflections.

Experiments have abundantly shewn, that the blood and juices possess a quantity of phlogiston, which they are seemingly every moment supplied with from the lungs *. It is very evident from the heat of the breath, and from the heat of the perspirable matter, especially in animals undergoing violent exercise, that heat or fire, in a greater or less quantity, is constantly discharged from the lungs, and from the vessels of the skin; and hence it has been thought reasonable to conclude, as phlogiston † does not produce heat without being put into action, that it is converted into heat or fire by the heat constantly existing in the body. Mr. Leslie says, animal heat is owing to

* See Dr. Priestley's *Exper. Phil. Trans.* part first, for 1776.

† By the word phlogiston, we mean the inflammable part of any body, or the food of fire.

A new
opinion
concerning
animal
heat.

the evolution of phlogiston. From experiment, Mr. Henly supposes, that phlogiston violently agitated is called fire *; and Mr. Crawford thinks that the absolute heat separated from the air in respiration and absorbed by the blood, is the true cause of animal heat. But may not the electric fluid, which resides in animals, be the living principle of fire, and have a principal share in keeping up or creating animal heat? Common electrical experiments, such as lighting a candle, setting spirit of wine and hurds on fire, discharging the electrical pistol loaded with fixed air, and the effects of lightning; evince, that being properly united with phlogiston, by being obstructed in its passage; it produces actual fire, or puts the fire residing in phlogiston into action: and why may it not, meeting with phlogiston in the body, constantly renew the heat animals possess? But by whatever means heat is

* Cavallo's Complete Treatise of Electricity, p. 119.

generated

generated in the body, it seems in health to be expelled before it becomes unfit for the purposes of life ; and that, though the air inspired may assist in cooling the blood, yet it is kept from over-heating, in a great measure, by the evacuations mentioned : and may not heat, therefore, from being confined and accumulated in any particular part, as it is contrary to the laws of nature, become so fiery and active as to irritate and inflame ?

How the
body is
kept from
over-heat-
ing, &c. *vide*
versus

We have seen inflammation does not accompany or succeed even an increased heat, where heat is constantly discharged by a free perspiration ; but when perspiration is obstructed, either local or general inflammation is a common consequence. Even in the instances mentioned at page 281, if the part is kept in a state of perspiration by proper applications, inflammation is prevented ; and why this difference, but from the fire or heat which ought to have been discharged, being confined ?

finer *? Nor does it seem material whether the egress of fire or heat is prevented by cold, by swelling, and distension from injuries, or any other cause; the effect being the same. Does not this doctrine agree with observation? For after acute obstruction, from distension and tumor, has taken place, an increase of heat shortly appears; and we may perceive, with as much certainty as in water heating for culinary purposes, that it gradually becomes greater till it has the sensation of fire.

Inflam-
mation in
wounds.

The same may be said of wounds; for the effect of the wounding instruments is spasm or pain, neither of which, we have seen, produce inflammation. Irritation occasioned by the air, by the dressings, or by the impulse of the blood against the

* Perhaps it may be imagined that the applications, by preventing tension, may also prevent inflammation; but even if a cataplasm is applied, the inflammation will not entirely subside: whereas, if perspiration is plentiful it will disappear.

obstructed

obstructed vessels, may in part be the cause of it. Nevertheless, accumulated heat seems also to assist in bringing it on ; because it disappears, as heat can get at liberty, by the vessels becoming pervious. Wounds cured by the first intention, are attended with less inflammation than others, seemingly from a speedy inosculation taking place, and preventing any kind of obstruction.

Hitherto we have considered obstruction arising from the circulation being intercepted by external causes ; it now remains to enquire, whether the fluids themselves ever lay the foundation of inflammation, by causing obstruction, from becoming too thick to pass the extreme vessels. In this matter we agree with a late writer *, that there are no experiments directly in proof of a preternatural lentor prevailing in the mass of blood, while circulating through the larger ves-

Lentor in what cases it may prevail in the small vessels.

* Dr. Cullen.

Inflamma-
tion does
not al-
ways fol-
low ob-
struction.

fels. But, on the other hand, we think it not improbable, that a variety of external causes, may thicken the juices in their slow passage through the lymphatics, on the surface of the body, and thus bring on obstruction and inflammation. Yet, though we think this circumstance may sometimes happen, we would not be understood to suppose that these events always succeed one another. On the contrary, we know it does not; for *chronic* obstruction will often remain a great length of time without the appearance of this symptom. Indurated glands and scirrhi are often long without inflammation. In most of those cases where pain, unaccompanied with inflammation, is occasioned by distension, there must of course be obstruction. Very large abscesses are often formed about the hips, &c. in what are called scrophulous habits, without the least inflammation, and without the knowledge of the patient; till thin matter in abundance

occasions a swelling, which must seemingly be owing to the absence of stimulus: because when, by length of time, the stagnating juices become acrid, irritation and inflammation are the immediate consequences.

Now this absence of stimulus and inflammation may be owing to the manner in which obstruction takes place, or to the nature of the part obstructed. In all those cases of obstruction referred to, productive of inflammation, it is evident irritability is increased, and the circulation so interrupted, that there is not any regular, or scarcely any sort of passage through it. The obstructions we are now speaking of, are always progressive; and the parts dilating gradually, irritation does not ensue; and the blood-vessels and nerves doing their office, even through the obstruction, no inconvenience arises from confinement of heat, &c. so that if the obstruction happens in a part of little sensibility, a stimulus can

give little or no disturbance. In confirmation of this doctrine, it is well known that *acute* or sudden obstruction, when seated in sensible parts, is often followed with inflammation; and that when it is *chronic* or gradual in its progress, inflammation does not hastily appear.

Inflam-
mation,
what it is.

Upon the whole, does it not seem evident, that every external inflammation is accumulated heat, either arising from external irritation, or from the confinement of heat or fire? And is not there every reason to believe, that internal inflammation is produced in the same manner? A metastasis of matter to any external part of the body, we are certain brings on inflammation, and its symptoms, by irritating; and does not the same cause produce pleurifies, inflammations of the viscera, &c.? Sometimes external affections of this kind are preceded by a rigor; at other times no rigor appears: and does not the same variety happen in internal

Internal
inflam-
mation.

inflammation? When acrid *miasmata* seize the internal parts, do they not bring on inflammation by irritating? Witness epidemical fore-throats, inflammation of the lungs, in the measles, &c. And is it not almost certain that putrid *miasmata* always bring on contagious fevers, by seizing upon, and irritating the nerves of the *prima via*? If the pores on the external parts of the body are so close as to prevent insensible perspiration, the fire or heat which ought to have been discharged, by being confined, may occasion either general or local inflammation, in the manner already described; or if we suppose the inflammation to arise from the immediate action of cold upon internal parts; yet we see it occasions an accumulation of heat: and, we believe, all kinds of inflammation, whether external or internal, to be produced by one or other of these causes.

It has not, however, yet appeared by what means a continual fretting of the nerves

Irritation,
in what
manner
it brings

on a flux
to the
part.

nerves brings to the affected part an unusual flow of heat, blood, and lymph: for though some have said, that instinct directs the heart to send immediately, to the irritated part, a quantity of fluid proportionable to the irritation; and others have endeavoured to prove, that irritation brings on a flux by causing an alternate contraction in the small vessels; yet both these opinions want evidence to support them: the one, as it at present stands, being perfectly chimerical; and the other, I imagine, has never been seen. Even Dr. Whytt * says, they are not remarkable enough to be discerned in most animals, yet they may be seen in the legs of a bug! and not being able to account for the circulation of the fluids through the capillary vessels, without motion in them, he rests upon this proof; and thinks it highly probable, that they are continually agitated

* *Phys. Ess.* p. 55. As Mr. Baker, from whom the account of the bug is taken, says, he never saw a vibration of the vessels in any other creature, we imagine he was mistaken in this instance.

with

with very small alternate contractions, to which the circulation in a great measure is owing. On the contrary, we have already shewn by a microscopical inquiry, that there is no motion in these vessels; and depending more on the eye-sight than conjectural reasoning, I have looked out for some other cause than Dr. Whytt assigns, to account for the passage of the fluids through capillary arteries. We think it can scarcely be doubted, that a quantity of the electric fluid is constantly passing through all parts of the body*; and whoever has seen in what manner it accelerates the motion of fluids through capillary glass tubes which are incapable of motion, will readily suppose that it may be the cause of the motion of fluids in the capillary tubes of animals which do not move†. They will be more inclined to

* We suppose the reader to be acquainted with the facts that may be produced in favour of this opinion.

† The absorbent system must be excepted, when it acts by its own power.

Irritation
increases
secretion.

this opinion, when they reflect that it increases local perspiration, and that while an insulated person is bleeding from a vein opened in his arm, the stream is made more rapid by conducting into the body a greater quantity of the electric fluid than it generally possesses. Upon this principle we may account for a greater flow of humours through the lymphatic vessels to any particular part by irritating; for by this means a greater quantity of the electric fluid may be invited into it, and a torrent of humours, in proportion to the irritation, will be the consequence. However, it must be confessed, that all we know of the matter *with certainty* is, that irritation increases secretion; that the lateral lymphatics are secretory tubes; and that the increased flux is owing to a greater secretion than ordinary: and till we know more, this may be sufficient for our purpose in practice; because we are certain of the fact, and that removing the
irri-

Irritating cause puts an end to the complaint. Let us, therefore, see whether we cannot explain the nature of the symptomatic fever attending this disease.

It is a truth well known, that when any part is inflamed it becomes more sensible, and of course more irritable; and even parts which had scarcely any feeling before, become very sensible upon being thus diseased: which must be owing to an increased sensibility in the nerves, brought on by irritation, and its consequences distension; because no other part of the body is capable of sensation. Nor is this increased sensibility confined to the inflamed part, but extended by the nerves through the whole body: for the brain being diffused in one connected substance over every fibre included in the cuticle, impressions made upon one part are immediately communicated to the whole of this nervous expansion*. If we drink a glass of

Symptomatic fever.

* See Diff. on the Brain and Nerves.
brandy,

brandy, there is an immediate heat communicated to the whole body before there is any possibility of the spirit entering the blood; and which must therefore be owing to the heat of the brandy upon the extremities of the nerves in the *primæ viæ*: and if heat will be communicated from their extremities in one instance, why not in another? Accordingly preternatural heat brought on by irritation, as well as increased irritability, becomes general; wherefore the *diathesis phlogistica* is seated in the nerves instead of the arteries, and the whole nervous system being thus inflamed, is more forcibly irritated. In particular, the brain diffused over the fibres in the heart is stimulated by the circulating blood in proportion to its degree of irritability: thence a quicker pulse, from a more frequent contraction of the heart and arteries; and both these symptoms, which characterize the symptomatic fever, keep pace with the degree in which irritation produces its effects.

How-

However, the motion of the heart may, in some instances, possibly be quickened without its becoming more irritable; and we beg leave to offer the following reflections to those who will take proper pains to examine them. Haller* says, "the best method of renewing the motion of the heart is to irritate its internal surface; and I have frequently succeeded by blowing into it, after having tried corrosives without success. The motion of the heart is equally renewed whether you inject water or blow air into it. If the air gets any how into the left ventricle, it is sufficient." Now Sir Isaac Newton, Dr. Mead†, and others, were of opinion that a subtle active substance, called universal elastic matter, was diffused throughout the universe; and, readily pervading all bodies, produces, many of their actions upon one another: and does not the electric *aura*, passing off the point of a

The motion of the heart may be increased without its nerves becoming more irritable. Reflections.

* On Irit. sect. 2. † Introd. to Ess. on Poisons. metal

metal or wooden conductor, seem to to be the fluid these able philosophers sought after, though it may be somewhat different in its properties from what they imagined? Probably those may be right in opinion who think it the vivifying principle of nature. A man with a putrid fever, in the agonies of death, was talking to me, when the cornea of both his eyes lost their lustre and he was instantaneously dead. The living principle seemed to leave him in the twinkling of an eye; nor can I compare its extinction to any thing but the dropping of an erect feather, by discharging the electrical conductor upon which it is placed. Indeed, there can scarcely be any doubt that it pervades the human body. Whoever has seen it pass in fluids, will easily conceive that it makes part of what is called blood, which is an excellent conductor; and that it may have a principal share in the circulation: for electricity communicated strongly to insulated

fulated animal bodies, quickens the pulse. It is necessary the blood itself, in its natural state, should be incapable of irritating; and its striking against the nerves of the heart is fully sufficient to carry on the circulation: but would this striking against the heart continue an instant of time if unsupported by a prior cause; and may not the very subtil fluid we are speaking of, capable of exciting motion without pain or inconvenience, be the first agent of motion in the blood? Nor are these reflections entirely unsupported by the suggestions of some great men *, who thought the fluid secreted in the brain did the offices ascribed here to the electric fluid; and the only difference is, that the nervous fluid is considered as a conductor instead of being an agent itself.

Surprize, as, for instance, when a physician enters a patient's chamber, is apt to quicken the pulse; but no sooner does he

* Dr. Mead and others.

recover himself, than it returns to its accustomed state; and the question is, whether this is owing to a momentary increase of irritability in the nerves, or to the cause just assigned. Indeed, it is almost impossible to conceive, that irritability in any solid substance can be so quickly increased and diminished; but it is easy to imagine that surprize may sometimes at first excite a greater exertion of the nerves, and, putting this fluid into quicker motion, accelerate the pulse only while it lasts: from all which we may conclude, that, if there is any truth in the conjectures that have been advanced, an accelerated pulse may arise from two causes; an increased inflammatory irritability, and a greater flow of the electrical *aura* to the heart. For though in inflammatory irritability both these causes probably concur, yet the latter may alone occasion it for a time: but to proceed.

We

We have shewn in the Dissertation on Irritability in general, that the nerves of some people are so extremely sensible in a natural state, as to produce violent inflammation, and acute fever from slight causes. Whereas in others, where the offending cause is violent, the succeeding inflammation will only be slight ; probably because the nerves are almost insensible to irritation. But whether the inflammation becomes considerable from the natural irritability of the patient, or from the force of the stimulus, or both united ; an increased impulse of the blood in the large vessels is a natural consequence. And though we believe that the *diathesis phlogistica* originates in the nerves ; yet we imagine the blood itself contributes to, and assists in, supporting the fever, by constantly receiving preternatural heat from the nerves and muscular fibres, and dispersing it through the whole body. But without this supply of heat from the nerves, &c.

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the blood seems to be incapable of creating disturbance ; because there is an end of every symptom of preternatural heat so soon as the cause productive of accumulated heat is removed : whether this is effected by lessening irritability, by taking away any irritating substances externally applied (where they have not, by causing obstruction or acrimony, created another stimulus), or by opening obstructed vessels ; or whether by the disease terminating of itself in discussion, by a dissolution of the parts principally affected, or by its becoming inactive and leaving them in a state of induration.

To conclude : it is plain the blood is sent from the heart to every part of the body ; because if one of the ventricles is burst, there is an end of the circulation. And seeing that neither increased action in the vessels, nor increased motion in the blood, brings on inflammation ; and that the nerves are the only part of the body which
can

can be irritated* ; is it not equally self-evident as the office of the heart, that the nerves alone give the preternatural heat of which we are speaking ? Because their being irritated produces inflammation, and because the preternatural heat goes off when they are no longer fretted or disturbed. If a person is scalded very much, and the cream of lead † is instantly applied, the part will be rendered insensible to irritation and little or no inflammation follows. If the eye is inflamed, a drop of laudanum put into it every night, and the application of the lead cream externally, will often subdue the disease. A gentleman had a large cancer upon his arm, which was violently swelled from the shoulder to the fingers ends. The cream of lead was applied to the tumor, and in a few days the swelling above and below the cancer entirely disappeared, owing

* See Diff. on the Nerves. † Cream of lead, is made by vinegar of lead and cream.

probably to the sedative power of the lead ; all which fully prove the doctrine we have advanced, that inflammation is *accumulated beat, brought on by nervous affection* ; and that redness, pain, tumor, and a quickened pulse, are only attending symptoms.

A D D E N D A.

Objections to the general opinion of a SYSTOLE and DIASTOLE in the large ARTERIES.

THAT the large arteries have a SYSTOLE and DIASTOLE, is an opinion probably cœval with the first feeling of the pulse, and has been universally believed and taught by all writers, who have treated of their action. It is a doctrine received as self-evident, consequently has not been disputed ; and from what I have above written, it will appear that I adopted it in part upon trust, like all those who have

have gone before me. Yet it is easy to see, that it might, and probably did, arise from *conjecture*, upon feeling the beating of the artery; and, I do believe it will appear, upon experiment, to be void of truth.

Upon reflecting on the capillary arteries being destitute of motion, and on what HALLER said about viewing the circulation in frogs and fishes *, since the foregoing essay was sent to the press; I called to mind the appearance of the carotid arteries while the blood was pouring from them, in a deer † that was killed many

* Loc. cit. in Treatise on Inflammation.

† It is at least twenty years since I saw this buck killed, but the appearance of the carotid arteries at that time made an impression on me, which has constantly remained. It has even presented itself to my mind's eye a thousand times; yet having read *Harvey, Arteriarum Motus qualis ex vivorum Dissectione*, and copy-books afterwards written by those in high esteem, I neglected the information, and suffered myself to be borne down by authority. Wherefore, I publish this note, as a fresh caution against trusting to plausible opinions or great names. For great men, after all, are but men, and consequently liable to error. And though books may

years since in my presence : and I very well remembered that I neither saw the systole nor diastole in those vessels, the blood keeping one continued impetuous stream. I prevailed, therefore, to have some sheep, doomed to slaughter, killed in the same manner ; and having fair views of the divided arteries, was thoroughly convinced, that they neither contract nor dilate during the passage of the blood through them. They had a *progressive motion* at each contraction of the heart ; seemingly from being elastic, and from the blood moving out of a wider to a narrower space, which ceases when this muscle is in its diastole : and the pulse is therefore either occasioned, by a short progressive, or projectile and retrocedent motion in the arteries, or from the blood striking against the sides ; instead of the causes which have hitherto been assigned.

lead to enquiry, this is a clear instance, that it is from nature only, that we can with certainty learn truth in medicine.

So far are the large arteries from becoming wider and narrower alternately, that their sides have not *the least motion* of this kind, whether the blood flows freely through them, or whether it is intercepted at the extremity of the divided vessel; which experiment we made, to prevent our being mistaken by any alteration that might happen, from the resistance to the blood being entirely removed. But though the sides of the vessel were greatly distended, yet they were perfectly still and quiet; the pulsation being at the end in the same manner as we perceive it, after tying the femoral artery in amputation above the knee: which we apprehend could not happen, if the action of the vessel was in a different direction. Since this, we have made a great number of experiments, in which the carotid arteries were very often laid quite bare, four inches in length, without being divided: and though we could feel the pulse beat

strong and regular, there was no motion that either myself, or those who stood by me could perceive in them. During the circulation, they seemed to be as quiet as a solid piece of wood. When divided, the projectile motion described might be, more or less, seen, but a systole or diastole could not be discovered; the sides of the vessels were perfectly still, and the blood was discharged in an impetuous stream. It is curious to observe the manner in which the arteries adapt themselves to the quantity of blood as it diminishes; and, I am led to think, that this contractile power of their middle coat, like an elastic spring, prevents their sides giving way to the motion of the blood.

Indeed, every experiment I have made has fully proved that they do not alternately contract or dilate; which observations perfectly agree with the *facts* related by HALLER*. For though, in one place,

* Sens. and Irrit. sect. 2.

he seems to adopt the theory of the contraction of the artery being alternate to that of the heart, yet in the next page he says, "in examining the circulation in animals with the microscope, *I never observed any contraction in the arteries.*" I am led, from the several experiments I have made, to believe, that what he said about the sides of the arteries, during the circulation in fish, &c. being as quiet as those of the tube with which he examined them, holds equally true in all animals; for in those arteries which were undivided, I could not even see the projectile motion I have described: nor is the contraction which takes place, after the blood ceases to move through them in living animals, any thing in favour of a contrary opinion; the cause which prevented it being removed. Hence, though there may be a motion in diseased arteries, their coats giving way to the force of the blood; yet no inference can be drawn

from this fact, regarding those in a natural state.

Indeed, it appears to me from these experiments, that were the sides of the arteries to contract in the manner writers assert, it would impede the circulation; and that the heart * itself forces the blood through the arteries: that the motion described is such as must naturally happen, and though artificial machines differ much from the human body, yet they clearly demonstrate, that fluids may be forced in a perfect stream, through pipes of very considerable length, by strong pressure only at one end of them, and it is certain, the heart and arteries are formed upon the best princi-

* In opposition it may perhaps be said, that the circulation has been carried on, even after the heart has been removed. But it must be remembered, that this circulation as it is called, could only happen in the small vessels, for which a cause independent of any motion of the heart or arteries has already been assigned; and which may continue to act, so long as the nerves are alive, which is often a considerable time after the animal appears to be dead.

ples

ples for this purpose. The common injecting syringe throws wax from the heart, through all the arteries of a child immersed in warm water, in an instant. If the leathern tube of a fire-engine were made elastic, and some what conical like the arteries; I doubt not, were its end at liberty or inclosed in a ligature, but it would undergo a similar motion from the passage of the water: and I am persuaded this instrument represents the manner in which the blood is made to circulate through the body. All which seems to be confirmed by the different and even opposite accounts, Haller has given about this matter, in his Dissertation and subsequent papers on the Motion of the Blood; which I have read since the experiments above mentioned were made. The pulsations he sometimes saw in the arteries, were undoubtedly that we have described; being made in the same manner, by their being *lengthened* at the time the heart contracts. They were

were principally evident when a ligature was made upon the arteries, or in the angles of flexion, but in the parts beyond they were lost; which seems to prove, that the *lengthening* of the vessel was owing to the blood meeting with, more or less, resistance from these causes; because it ceased when the blood passed the curve into a right line. He also tells us, that though a pulse may be seen in those arteries which have thin coats, yet it is not to be discovered where their coats are strong; which accounts for his not being able to observe it in goats*, and a great many other animals. Every one of his experiments prove, that the arteries have no systole; and we believe, whenever a visible motion happens in them, it is owing to some accident or peculiar circumstance.

I believe many arguments might be brought in support of these observations;

* Exper. 50.

and it may be said, much reasoning may be opposed to them. But as we have already been too long deceived by suggestions, I appeal to experiment, the test of truth, which may be readily made without cruelty. I only wish the unprejudiced eye to direct the judgment, and if what I have asserted be true, it will fully prove the doctrine I have endeavoured to establish, about the arteries being not irritable; and refute that theory of diseases, which has arisen from a contrary opinion.

CHAP.

C H A P II.

ON THE TERMINATION OF INFLAMMATION.

On the Manner in which Nature herself terminates different Kinds of Inflammations.

Galen's
theory
produc-
tive of
error.

GALEN, from whose theory many errors in physic have sprung, advises to attempt discussion in all inflammation arising from fluxion, by different evacuations, till signs of matter appear; and then a contrary method is to be pursued*. And this doctrine, seemingly without being examined, has been copied from one writer to another down to our own times: the modern books in general directing us to bleed and purge, and to attempt discussion by every other method, upon the first appearance of inflammation. But if it resists all discutient means, we are then to desist from farther evacuation, and as much as possible to assist nature in bringing on suppuration. But is not this acting with confessed uncertainty? And shall we not

* De Arte Curat, ad Glacu, lib. ii. cap. 2.

always

always be doing wrong, when the inflammation is incapable of being dispersed? A criterion ought to have been fixed when to attempt discussion, and when to let it alone; and before we proceed to a method of cure, we will try to remove this defect.

For this purpose, we must enquire into the manner in which nature herself terminates different kinds of inflammation; and previous to this enquiry we must observe, that we used the word *discussion* in the last chapter, in the common manner, to signify that process which removes the disease, without any external solution of continuity, excepting in the cuticle. By a dissolution of the parts principally affected, we are to understand both suppuration and mortification, which seem only to differ in the manner in which the parts are dissolved; and by induration, we mean those hardnesses in the cellular membrane, &c. which frequently happen after parts
have

Which is removed by examining nature.

have been inflamed; and a hardness in the glands, distinct from scirrhi, which we look upon to be a disease *sui generis*, and not an object of present enquiry.

The manner in which nature herself terminates inflammation under different circumstances.

If inflammation is confined to the skin, it either terminates by dispersion or mortification, as will hereafter be proved. The same may be said when the inflammation happens in membranes or tendons; for if it does not disperse, the part sloughs away in rags. The inflammatory rheumatism never brings on either suppuration or mortification; and of course, when it removes, must go off by dispersion. The gout, and the œdema attended with inflammation, when they leave the patient regularly, always terminate in the same manner.

When glands are inflamed from a fault in the fluids passing through them, the inflammation disperses, suppuration comes on, or induration follows, according to the continuance and activity of the offending matter.

If

If its stay is not sufficiently long to corrode the vessels, in which it stagnates, it returns again into the circulation, and the inflammation disappears; as we see in the glands in the axilla, which inflame after inoculation. If it remains in the gland a considerable time, the same instance evinces, that it corrodes through, seizes upon the adjoining cellular and adipose membrane, and brings on suppuration: but if the matter stagnating is of a less active nature, and incapable of corroding, induration is the consequence.

When a metastasis of matter, not very acrid, in any considerable quantity, happens into the cellular membrane, an abscess will mostly be the consequence; because it will dissolve the fat and oil together with the membrane, when by heat, and, perhaps, some kind of fermentation, pus is formed*: which either corrodes its way through the skin, is wholly taken up by the absorbent vessels, and the skin

* See Abscesses,

and the parts underneath unite ; or a hardness, occasioned by inspissated matter, is left behind. When the matter which is lodged in the cellular membrane is very *acrid*, instead of forming mild pus, it converts the fat and oil into a highly corrosive ichor ; and a dissolution of the membranes and skin follows, from its being a caustic, and producing a mortification *. Sometimes a particular kind of acrimony effects an intermediate way of dissolution, for *it* crisps up and corrodes the adipose membrane ; and when the tumor breaks, or is opened, a clear hot ichor, resembling brine, is discharged †. At other times the cellular membrane is less crisped, and separates half dissolved, as we see daily in

* See Mortification.

† A surgeon, who had been a hard drinker, was seized with an inflammation in his breast, which extended to the axilla. A tumor followed, and discharged upon being opened, more than a pint of excessive hot clear ichor. The cellular membrane was crisped up into strings, and a good deal of extravasated blood was also crisped into the same form ; but dressing the ulcer with a digestive balsam, digestion ensued, and he was cured in the common manner.

the

the carbuncle ; owing probably to a difference in the nature and virulence of this kind of acrimony.

Hence we see, that the different terminations of inflammation arise from the *nature* and *situation* of the offending cause ; for the same kind of matter, differently situated, will produce different effects. In the phlegmonoide erysipelas, where part of the offending matter is lodged in the skin, and part in the cellular membrane, the skin sometimes mortifies while good matter is formed underneath. And this knowledge leads us to a true method of cure, without interrupting nature, or without the great perplexity and confusion we meet with in writers upon this subject. But to make the matter plainer, we will consider inflammation of the several parts mentioned distinctly, with their proper method of cure ; beginning with a simple inflammation of the skin, which, both on account of its situation and simplicity, first attracts our attention.

C H A P. III.

OF A SIMPLE INFLAMMATION OF THE SKIN, AND ITS CURE.

BY a simple inflammation of the skin, we mean a disease entirely confined to this part, and differing very much from a true erysipelas. Its external appearance is only heat and redness, and by the touch we discover it does not extend farther than the outward covering of the body, excepting by nervous sympathy. Stimuli, externally applied, are a frequent cause of this disease; nor does it unfrequently happen by a metastasis of matter from the blood.

Now the reason why a simple inflammation of the skin, either terminates by dispersion or mortification, is probably because the skin is incapable of being converted into matter. I think lymph is never changed into pus, unless it is extravasated into some cavity, where it meets with fat or oil; or
into

into ulcers, or upon a part where by heat the more volatile parts are made to fly off, and a sediment is left behind. Therefore, unless the inflammation goes off by a natural subsiding of the disease, or the lymph being discharged and collected under the cuticle on the surface of the body, a mortification must ensue; in consequence of that acrimony the juices will acquire by heat and long stagnation, in a part where there is not a sufficient quantity of fat or oil to correct their virulence. Discussion, therefore, is the only assistance that can be given to nature with propriety. And this may be accomplished almost with a degree of certainty, because topical remedies come in contact with the vessels and fibres of the affected parts.

But in the present case, where we can remove the irritating cause, the inflammation for the most part soon disappears with very little assistance; and when this is not accomplished, the skin in some instances

separates into rags, as we see in the breasts of lying-in women. This circumstance must be well known to those surgeons who have had a considerable share of practice in midwifery. The disorder takes its rise commonly from acrid lymph stagnating in the skin, which by degrees acquires the colour of parchment; and we suppose is the disease which has been called the white gangrene. After separating, in the manner described, the ulcer readily heals by simple dressings; as the disorder, at least in every instance I have seen, is local.

However, simple as this disorder is, more or less assistance is commonly wanting; and, according to our general doctrine of inflammation, the cure must consist in subduing preternatural heat, either by removing stimuli, or by rendering the nerves insensible to irritation. In many instances these intentions are to be pursued at the same time, but in both the examples before

fore us, the first step, if possible, is to remove the irritating cause ; though different methods are necessary for this purpose. When it is seated externally, every man's own judgment points out to him the manner in which stimuli are to be removed. Afterward, those remedies should be chosen, which both lessen irritability and abate heat ; and for these purposes there is not any thing excells the application of the cream of lead, spread thick upon linen cloth, and applied as often as the cloth becomes dry. Cream, or milk, and the vinegar of lead make an exceeding cold mixture, which powerfully answers both these purposes ; it scarcely ever fails to disperse this kind of inflammation in a very little time ; and though it is a much stronger remedy than any Goulard applies, yet it may be used with the utmost safety. Cold water also, in this instance, is an excellent remedy ; linen cloth, wet in many doubles, being renewed as often as they become warm. A man of a very irritable

habit had his whole leg invaded with this disease, from horse-turpentine being applied to a small wound. It was exceeding hot and painful, and had brought on a fever; but cold water alone put an end to this complaint, by being poured frequently upon wet cloths, which surrounded the affected part. The heat was even so great as to send out at first a very considerable steam from the linen; but the patient finding ease from the remedy, pursued the cooling intention till the malady was subdued. I have frequently seen similar success from this remedy. The *ceratum ex aqua frigida Galeni* * will be found very effectual; and upon the same plan, though less powerful, the ointments loaded with the cooling juices of plants were applied.

If the irritating cause has been of long continuance, it may have drawn a flux of humours upon the part, occasioned ob-

* *Cera cum olio optimo liquatur et ceratum liquidum fit, quod frige factum in mortario aqua frigida paulatim instillata quantum imbibere potest, cum pistillo teretur.*

struction, and created a new stimulus, which will keep up inflammation though the first cause is taken away; and deobstruents must be added to our topics before the disease can be wholly removed*: but they should be of that kind, which have a dissolving power, and yet rendered incapable of doing injury by the irritating property usual in remedies of this class. The neutral salts † will furnish us with topics enough of this kind, if the nerves are rendered insensible to their action, by uniting with them some of the preparations of lead, formed into an ointment of the consistence of well made nutritum, that it may lie easy upon the part, and abate tension without relaxing too much. When the obstruction is thus removed, which the subsiding of the swelling will discover, the salt being omitted, the ointment alone may finish the cure.

* See Introduction, example iv.

† A very small quantity is sufficient; if we put in too much, it increases the inflammation, and prevents the discharge.

The same treatment is required when the inflammation arises from a metastasis of matter from the blood ; except that the neutral salts should be more at liberty to act, and make a discharge from the vessels of the skin. Which may as effectually be unloaded by this means, as the vessels of the intestines, by a dose of purging salts. It is thus we may assist nature in finishing the work she has begun.

It will frequently happen that no other process is necessary ; but if costiveness or the like requires opening medicines, they should be given. If the disease should ever occasion any considerable degree of fever, the inward treatment should correspond with that pursued outwardly. If the plan of extinguishing heat by coolers takes place, cooling medicines should be given ; but when a discharge from the skin is attempted, *spiritus Mindereri*, or some such medicine is preferable.

C H A P. IV.

ON THE ERYSIPELAS IN GENERAL.

AN erysipelas, upon enquiry, will be found to be a compound disease, and not wholly confined to the skin, as Galen and his followers have taught*: nor does it appear, from the writings of Hippocrates, that he used the words *erysipelas* and *ignis sacer* synonymously. In his chapter *De Morbo Sacro*, the erysipelas is not mentioned; nor do I find when he treats of the erysipelas, that he says any thing of the *ignis sacer*. After Galen's time, indeed, the Greeks gave the name of *erysipelas* to this disease; and their opinion has been foisted into the text of HIPPOCRATES by translators. For instance, in speaking of an *erysipelas* in the *uterus*, *De natura Muliebri*, sect. xii. the Greek passage is *Ην δε ερυσιπελας εν τησι μητρηζιν εγγενηται*, which

Erysipelas a compound disease.

Erysipelas and ignis sacer distinct diseases.

* *Si exquisitum fuerit erysipelas, sola cutis est affecta.*
Method. Med. ad Glaucon, lib. ii. cap. i.

is translated *si ignis sacer erysipelas dictus in utero oboriatur, &c.* and the same mistake occurs again, in his predictions and other places.

Celsus manifestly made a distinction betwixt these diseases. His description of the *ignis sacer* no wise agrees with Galen's account of the erysipelas; nor is it true that he divided the erysipelas into two sorts, the simple and the ulcerated, giving the name of *ignis sacer* to the latter: for he tells us, (lib. v. cap. 26.) that erysipelas is a name given to an inflammation attending gangrenes and wounds; though it sometimes happens without them, for which there is no term in the Latin language; and he therefore uses the Greek word *Ερυσίπελας*. Andernacus* observes, *Multi inter Latinos scriptores interpretantur Erysipelas sacrum ignem. Celsus autem hunc ab illo separat, eoque malo Græca uti dictione quam expositione esse obscurus.* In another place (lib. v. cap. 28.) he speaks

* Paulus Æginetæ Cap. lib. iv. cap. 21.

of the *ignis sacer*, and as he has a name for it in his own tongue, it is plain he could not mean the same disease. This, indeed, he divides into two species; his description of the first seeming to agree with what is now called a *herpes*, and the latter to be only a greater degree of the same disease. In this light both Aquapendens * and Wiseman † think Celsus ought to be understood. Modern writers, indeed, have imagined that the ulcerated erysipelas may properly be called the *ignis sacer*, but I see no authority for this supposition. I believe different diseases have by this means been considered as the same complaint, and will, therefore, treat of that kind of erysipelas described by Galen ‡.

This is copied into almost every book since written on the subject. Writers have been very exact in transcribing his distinction betwixt a phlegmone §, and an

* Oper. Chirur. lib. i. cap. 12.

† Book i. chap. 17.

‡ Meth. Medendi, lib. xiv.

§ See Abscess.

erysipelas ;

The
symptoms
which di-
stinguish
an erysi-
pelas

erysipelas; and in particular have followed him in asserting, that the pale colour which arises upon pressing the part with a finger, and its becoming red again, is a certain mark of the disease; whereas it is common, more or less, to all external inflammations. The most material distinctions are the citron colour, and the skin being *thickened* and *dilated*; whereas in a phlegmone the skin is only red, is elevated, and has, more or less, a conical form. However, though the Galenic description has been so implicitly copied, yet there have not been wanting some dissenters from the ancient opinion regarding the nature and cure of this disease; though even this passed uncontroverted till the late Baron Van Swieten, (sect. 280.) endeavoured to prove, that the yellow colour did not arise from bile, but from a yellowness in the serum of the blood. But Dr. Magenise* not being satisfied with

* On Inflammation.

this

this reasoning, has since called in the aid of chemistry to settle the matter ; and asks, whether the blood may not change its colour, from red to yellow, on being decomposed by the heat and pulsation of an inflamed part ? Though if this should be admitted, must not every inflammation be of the same colour ? Some modern writers, who still prefer the ancient notion of bile being the cause of this disease, do not consider that they are talking of a local jaundice, with effects, which never arise when we are certain bile is diffused upon the surface of the skin. But let us leave conjecture and attend to facts, which may, perhaps, settle this difficulty.

If the membrane lining the throat is inflamed, does it not produce an erysipelas ? If the *aponeurosis* of the *biceps* tendon is pricked in bleeding, and the subsequent symptoms rise to any considerable height, does not an erysipelas always ensue ? I have seen the *fascia lata* of the

A new opinion.

The membranes the seat of an erysipelas.

leg laid bare and slightly wounded, which brought on a violent erysipelas from the knee to the ankle. Is not an erysipelas a common consequence of the tendinous expansion in the end of the finger being inflamed in a *paronychia maligna*? In neglected bruises of the head, the *dura mater* sometimes inflames and brings on an erysipelas of the whole head and face. And is any thing more common than for this disease to follow wounds of the head where the pericranium is slightly wounded, or where the discharge from a wounded membrane, is suppressed by access of cold air? If the inflammation is very great, a delirium is sometimes the consequence, from the connection betwixt the vessels on the inside and outside of the skull; and does not the same thing happen, when the matter in a critical erysipelas of the head, is repelled by improper applications? Which evinces that the same parts are affected in both cases, and that the matter is carried back to

to the brain by the same order of vessels.

A man was lately seized with a fever, and after two or three days continuance an erysipelas began to appear about his nose, which soon spread itself to his ears, and over the whole head. The membranes in his throat, in the auditory passage, and in the urethra, were seized with the same kind of inflammation; and an erysipelatous efflorescence appeared, more or less, all over his body, plainly shewing the complaint to be a disease of the membranes. Hence it seems equally evident, as when we trace the continuance of blood-vessels by wax, that there is a set of lymphatics which pass from the membranes and terminate in the skin. There is every reason to believe, that particular fluids pass through particular parts; and supposing the juices in an erysipelas, from an internal cause, which pass through and nourish the membranes, to have become acrid, it follows that arriving

Instance
of the
mem-
branes
being the
seat of this
disease.

riving in the ultimate vessels described, it will irritate and produce inflammation. Nor is this supposition unsupported by facts; for the matter absorbed from ulcerated legs, cancers, and from crude abscesses, by contaminating the juices, are frequently the cause of this disease: may it not, therefore, arise from any other cause which renders them incapable of passing through the membranes without irritating? The yellowish red colour arises from a simple inflammation of the skin, and an inflammation of the membranes being united; for the yellowish ichor in the latter of these diseases, which stagnates in the extreme vessels, irritates, and invites the red blood into the lymphatics of the outward covering of the body. Upon the whole, may we not safely conclude, that an erysipelas originates in, and is chiefly an affection of, the membranes, either from their vessels,

or

Erysipelas, what it is.

or fluids which pass through them, being diseased?

We see then how an erysipelas may arise, either from an external or an internal cause. A sudden blast of cold frosty air, insolation, or wounds in the membranes, often produce it. At one time it arises from a bad habit of body, at another it is epidemic, and varies according to the nature of the *miasmata* that occasion it; wherefore, it follows, that *erysipelata* are either local or general, and we shall speak of the methods of cure separately, under these different heads.

Causes of
erysipelas.

C H A P. V.

ON THE CURE OF AN ERYSIPELAS.

The cure of this disease has been conducted with confusion.

AS neither the membranes nor skin, which seem to be the parts affected in this disease, can suppurate, it is evident discussion is the only rational method of attempting a cure: and though practitioners, from the earliest time, have all along preferred this mode of treatment; yet there is not any disease, perhaps, in which there has been more perplexity and confusion in the choice of topical remedies for this purpose; or where common sense has been more over-balanced by hypothesis: but to understand this matter properly, a short history is necessary.

Hippocrates, said that striking in an erysipelas is bad*; and also, that the application of cold things helped this disease when free from ulcers†; and whether the

* Aphor. xxv. sect. 6.

† Aphor. xxiii. sect. 5.

erysipelas of Hippocrates and Galen were the same disease or not, Galen* and his followers adopted both these doctrines. They agreed that the matter occasioning this inflammation ought to transpire; but an opinion of its being occasioned by hot bilious blood, led them to think that it required a treatment different from other inflammations, and that innate coolers were necessary. Accordingly linen cloths wet in the juices of cooling herbs, cataplasms made of these juices and linseed or barley-flour, cloths wet in equal parts of vinegar and water, or in great inflammation the cerate of cold water, were used on this occasion.

Unfortunately, however, the herpes was also supposed to arise from hot bilious blood, and to be a species of this disease; and though a very opposite method of treatment was pursued in this malady, yet

* Method. Med. lib. xiv. et de Comp. Med. lib. i. secund. gen.

they were both handed down as remedies against an erysipelas. We find in Galen's fifth book *de Comp. Med. secund. gen.* a composition called *pastillus ad erysipelata* of acacia, myrios, opium, frankincense, and vinegar, originally used in the herpes; together with the cooling practice, and Galen's cerate, copied into the same chapter, by AETIUS, PAULUS, and other compilers. AETIUS* though he treats of the ignis sacer and erysipelas under separate heads, yet he considers them both as the same disease; and favoured the opinion that they both arose nearly from the same cause. Accordingly there does not appear to have been any great difference in his treatment of these disorders. In his chapter on the erysipelas, he says, "Pastes were not only applied to the inflamed, but also to the neighbouring parts; and were to be assiduously removed, because they

* De Febric. &c. sermo i. cap. 89. De Affect. sed. sermo ii. cap. 59.

soon became dry and lost their virtue." He not only transcribes the above prescription from Galen, but also two nearly alike from ANDROMACHUS and ORIBASIUS, composed of litharge, ceruse, opium, live sulphur, saffron, and sweet wine: and very gravely tells us that a swallow's-nest powdered, sifted and mixed with honey, makes a cerate that soon discusses an erysipelas in the face! But while the Greeks were favouring very different kinds of practice, the Arabians adhered closer to the cooling method, carrying it so far as to apply cold water till the inflammation disappeared: though Avicenna himself advises in the beginning to join styptics along with the cooling juices * commonly used; and afterward cautions against repelling the erysipelatous matter!

* Lib. iv. cap. 5. This doctrine seems to have been taken from Galen's common practice of using repellents in the beginning of inflammation. De Comp. Med. secund. loc. lib. vi.

Nevertheless the general opinion was till the days of Parey *, that in the beginning and increase of this disease, the topical applications should be cold and moist, without any dryness or astringency; because the more acrid matter being driven inward, by the use of astringent applications, would injure the adjacent parts. Liniments were still in use, composed of wax, oil, and the cooling juices, but not till the heat and pain became intolerable; and then they followed the practice † of joining opium along with them, to mitigate these symptoms. When the heat, soreness, and pain abated, they were laid aside; lest the opium should bring on a mortification by extinguishing native heat. Afterward cataplasms, or diapalma dissolved in oil, finished the cure.

Vesalius is the first writer I have met with, who treats this disease in a different manner; for notwithstanding he pursued the practice of using the juice of cooling

* Lib. vii. cap. 13.

† See Paulus, lib. iv. cap. 21.
herbs

herbs in sponge, he decried narcotics, supposing they would destroy the parts by their cold property: and he did not apply ointments till the heat ceased, because he was of opinion that unctuous medicaments were of an emplastic nature, and stopped up the pores; and because oil readily acquires an inflammatory disposition*. Galen, in his sixth book of Preserving Health, advises anointing with oil after bathing, to prevent, by its emplastic property, great perspiration; but though he never applied this doctrine to the cure of an erysipelas, yet after-writers, from what he had said, thought oil must be highly pernicious in a disease, where it was imagined transpiration was so essentially necessary: and the many converts to these opinions made them become general, without any experiment being

* In this translation, the meaning of the author is attended to; his own words are, *Idem dicendum de medicamentis unctuosius, qui sua unctuositate emplastrum partem, & balitus non potest egredi. Secundo quia oleum facile inflammatur.* Chirur. Mag. cap. 14. lib. v.

made to prove whether they were true or false.

I imagine, however, that this doctrine did not become popular for some time, because Fabricius ab Aquapendente, a most exact compiler, who immediately succeeded Vesalius, omits it; and, after taking a view of the practice of former times, prefers an ointment, in which sedatives and stimulants were joined, unless the disease is in the head. Where the head is the seat of the disorder, he in one place thinks all kinds of application improper; and in another, where he thoroughly debates this matter, he says, hot applications should not be used, because they will invite a flux of humours; nor those which are cold, because they repel them; but when the heat and pain are great, he recommends easing the pain by anointing the part with oil of sweet almonds, or with a decoction of mallows, in which there is a portion of oil of violets; and, lastly, finishes

finishes the cure by applying the swallow's-nest cataplasm of Aetius.

Succeeding writers did not imitate any part of this practice, except agreeing that refrigerants were hurtful; and they added, that remedies which penetrate into, and dissolve, the offending matter, are most proper; but they chose for this purpose spirit of wine, *lapis medicamentosus*, and such like combustibles*. Indeed, as unctuous and cooling remedies were *argued* out of practice, the opposite method, before spoken of, calculated for an herpes, took place: nor did chemistry mend the matter; for though, the chemists changed the theory of this disease, they used nearly the same topics. They told us that the subtile, hot, thin, bilious blood, in this disorder † abounded with a *volatile acid*, and the topical applications should be composed of moderate repellents and vo-

* Read Musitanus, cap. xi. de Erysipelata.

† Munnicks, lib. i. cap. 5.

latile resolvents, to correct this acidity. But the remedies prescribed do not seem to have tallied well with their intention. Sugar of lead, litharge, troches of Rhazes, camphor, flower of brimstone, &c. were used for this purpose, either made into an epithem with elder-flower water, spirit of wine, and vinegar, or into an ointment with oil and white wax.

Applications of this kind would, no doubt, be injurious if repellents could do injury: so that hyphothesis in one instance, and practice in another, made it appear that topics were dangerous; for notwithstanding the preparations of lead, commonly used on this occasion, are sedatives, and, when properly managed, abate inflammation, yet when joined with spirit of wine, troches of Rhazes, lime-water, &c. they are incapable of preventing mischief; nor have they in themselves any power or tendency to promote a discharge by the skin, but rather to prevent it. It

is not, therefore, any wonder if ill consequences, such as repelling the morbid matter, bringing on mortifications, and other like accidents, should frequently happen from remedies perfectly capable of inflaming the vessels and obstructing transpiration; of which there are instances to be met with on record: and it was probably owing to accidents brought on by this mode of proceeding, that some writers have forbidden the use of outward applications.

The inflammation, if left to itself, would, no doubt, frequently become exceedingly troublesome; which put practitioners upon the search for external remedies. Those who adopted the chimerical opinion, that a volatile acid occasioned the mischief, advise chalk, in powder, to be strewed upon the inflamed part; and others, who seem to have proceeded without any principles to act upon, employed either empirical remedies, or such as an
ill-

ill-grounded theory suggested. Some used fomentations of soap, others medicated bags filled with elder-flowers, moistened with wine and water, or vinegar; some, a decoction of sheep's dung in wine; while others again employed epithems, composed of Venice treacle and spirit of wine. Some thought lixivium and oil a better remedy; others preferred a poultice made of oatmeal and water, without boiling; so fearful were they of any thing unctuous coming to the affected part. A variety of other remedies were employed by different prescribers, and such uncertainty in the mode of proceeding will ever be the consequence when common sense is not the standard of practice.

In this state of disorderly practice Hoffman, who must, in this instance, be directed chiefly by theory, adhered to the method of applying dry medicated powders; and modern physicians have followed his plan, though they have substituted wheat-flour,

flour, or Peruvian bark in powder, as more proper remedies. So firmly were the faculty persuaded, by copying from one writer to another, that topics were prejudicial, that even Dr. Mead cautioned against the use of hot fomentations and cooling ointments in this disease. But the question is, did Dr. Mead, or any former writer, ever see any inconvenience from cooling ointments or emollient cataplasms? or did he adopt this doctrine, which we have seen arose in speculation, from its becoming an axiom, by being long continued in medical books? The mischief was certainly occasioned by the heating, and not by the cooling topics; and why they both equally grew into discredit, has already been explained.

I know, indeed, that mortifications have happened in this disease, under the use of emollients: for instance, Hildanus* gives the case of a farmer, where a phleg-

* Ob. lxxxii. p. 59.

monoide erysipelas of the hand and arm being anointed with oil of roses, the inflammation increased, and a mortification seized the whole hand. But it does not follow that the increase of inflammation and ensuing mortification were owing to this remedy; they more probably arose from the strength of the disease, which the oil was incapable of subduing. Mortification is a natural termination of this disease, when the inflammation cannot be kept within bounds; and this will sometimes happen under the most judicious management. Hildanus's case seems to have been a local mortification of the skin, and I have seen many instances of this sort; plenty of good matter appears underneath, and they terminate happily with mild digestives, after the separation has taken place, under an emollient poultice. *

I have seen horrid consequences from the practice more generally recommended!

* See Mortification.

If no application is used where the disease is considerable, the inflammation increases, the parts grow more irritable, greater pain with a more violent fever follow, and a local mortification may be the fatal result. If flour, or medicated powders are used, all we can expect from them is to drink up the matter which exudes; and, by forming a crust, they become very troublesome, if they do not produce bad consequences. We have already cited a case, where a mortification and death followed the application of wheat-flour; and we have lately seen a mortification brought on in a *paronychia maligna* by the same remedy: for though wheat-flour has not any property in itself destructive to the part to which it is applied, yet it suffers the disease to increase without interruption till it sometimes destroys the part it affects. Nor are wool, fir, cabbage, or vine leaves, which some have recommended, to be depended upon, except in
slight

flight cases ; and whether a different method of proceeding where topics are necessary is not preferable, will hereafter appear. But to remove every prejudice brought on by theorists, let us first examine the practice of those, whose medical department enabled them to be better judges of the effects of outward remedies.

Is there a more cooling ointment than the *ceratum ex aqua frigida Galeni* ; and was it not used for many centuries without impeachment ? Aquapendens, after collecting together almost all that had been written upon the subject, and maturely considering the matter, advises the use of oil of almonds, a decoction of mallows, and oil of violets, to an erysipelas in the head and face, when heat and pain made them necessary : and surely, if these topics were proper when the inflammation in this part was great, they could not be unsafe where the disease was less violent, or when seated in a less important part of the body.

Peter

Peter Lowe *, from his own practice, recommends the cerate of Galen, the unguentum alb. camphor, or a cataplasm, composed of barley-flour, linseed, oxycrate, powder of chamomile and oil. Scultetus † says, he has cured innumerable erysipelata of the extremities with a simple liniment, not neglecting internally the use of universals, and cooling remedies.

Wifeman talks of the current doctrine and remedies generally used; but says, "in a critical erysipelas, *a cerate of white wax and oil hath hitherto served my purpose*; and as the blisters arise, I cut them to prevent erosion." Indeed, he sometimes fomented the part with a decoction of sage, and soap dissolved in it, or milk, before he applied this cerate; and he adds, the *unguentum nutritum*, with a *third-part* populeon, is proper. But when the erysipelas was in the face, he

* Lib. iv. p. 102.

† Armament Chirur. p. 304.

was led by the common opinion, that a different method must be pursued; and applied lime-water and linseed oil, shaken together, or the remedy which is now called the vegeto mineral-water of Goulard, mixed with oil: but if these were safe, was not there more safety in his simple cerate, which is free from astringency?

The same may be said of Turner, who forbids cold, repelling, or restraining applications; “but why unctions of all kinds, says he, and without exception, of cases, as they are by some, should be forbidden, I cannot see: nor, perhaps, shall we find a better, especially upon the remote or extreme parts, than are the oil, and *unguentem ex floribus cum cortice interiore atque foliis sambuci parata*, which by relaxing the *fibrillæ* abate the tension, and thereby take off the pain and inflammation.” Nevertheless he could not get quite clear of the prejudices of education; and, therefore, advises.

advises, by way of caution, an epithem of camphorated brandy, where the disease is seated near the brain! Can there be a stronger instance to shew how far theory will operate against common sense?

Heister adopted the doctrine that acids, fat, and oily things, obstruct transpiration; and of course advises the applications before recommended by those in the same persuasion*. But amidst the praise of liquid, spirituous, and dry applications, he departs from his principles in adding, “ we need not say much here of the green
“ internal, or middle bark of elder, whose
“ eminent virtue in inflammations is al-
“ most known by every body, and has
“ been this long time confirmed by con-
“ stant experience.” But surely, if this emollient is so highly useful, drying powders could not be recommended with equal

* Their theory had carried them to the application of rob of elder, spread upon *blue* paper, which was not only free from any thing fat or oily, but also from the necessary properties to abate inflammation.

propriety. Indeed, we have seen other writers, of much experience, speak of the good effects of cooling ointments, and emollient cataplasms in this disease; and yet were so deterred from their use, by the cautions they met with in books, that they durst not recommend them!

However, we may easily distinguish, that part of their practice, where theory took place; and have not they said enough to evince that applications which are emollient, cooling, and lie easy upon the part, are safe and useful? We might have collected a multiplicity of facts from other writers to the same purpose, but these specimens are sufficient: and, if the theory they were fettered with, appears from the account we have given, to have arisen in imagination only; it will be evident, that abundance of useless cautions and bad practice have unnecessarily been the consequence.

Seeing

Seeing people sweat in the very parts where mercurial ointment was daily rubbed in, to bring on a salivation ; its use in a dropfy, its being so very readily absorbed in wounds, and when rubbed upon the body ; that gouty feet sweat often, which are wrapped up in jersey in the oil ; all these instances induced me to believe, that oil did not stop up the pores. But to put the matter beyond doubt, I perswaded a person to have one of his feet rubbed with oil several evenings together, and one evening it was wrapped up in an oil-case, surrounded with flannel, at going to bed. In the morning we were convinced, from the collected sweat, that all the doctrine about oil stopping up the pores, unless when used so as to over relax the fibres, was groundless and void of truth.

For my own part, I have for more than thirty years, constantly used cooling emollient applications in this disease ; nor have I any reason to alter my practice : for I

am induced to believe the opinion that they abate pain, and lessen irritability by removing tension; and that some of their oily parts being absorbed, defend the nerves, more or less, against irritating matter. If oily or emollient applications are so prejudicial in an erysipelas, how comes it to pass that they are so beneficial in other inflammations, which require exactly the same kind of treatment? I have met with several surgeons of experience, who use unctuous and emollient dressings in this complaint without reserve; I am persuaded the outcry against them originated in groundless theory, and that the apprehensions of such kind of topical remedies being injurious, can only possess the minds of those who have not examined the subject, or are wanting in experience. But I shall now lay down a regular method of cure, beginning with a local erysipelas.

C H A P. VI.

OF A LOCAL ERYSIPELAS.

THIS disorder may arise from external accidents, a compleat metastasis of acrid matter, or from epidemical *miasmata* affecting the membranes. Some persons are more liable to this disease than others, and give reason to imagine that every erysipelas arising from an external cause, is not local; but that a disposition in the habit previous to the application of a blister, for instance, is the cause of that disease sometimes attending the use of this remedy. On the other hand, it does not follow that a *materia morbi* has lain dormant in the habit, and shews itself upon the action of this exciting cause; as a greater degree of irritability than ordinary will occasion these symptoms, and the disease may nevertheless be perfectly local. However, if any doubt arises, it may be treated in the manner hereafter directed

Local ery-
sipelas
how to be
treated,

for the general erysipelas; and we lay it down as an invariable rule, that whether this disease when seated in the head is local or not, always to attempt the cure by promoting a discharge outwardly: because the vessels belonging to the membranes on the outside of the skull, having an immediate communication with the membranes on the inside, obstruction, and its consequences, may readily be communicated from one to the other; whether from the outside vessels being over-loaded by the disease, or whether it is repelled by improper applications.

A man received a small wound upon his head, which injured and laid the pericranium bare; but digestion came on in a proper time, and a cure was hastening forward, when he carelessly at work exposed his head to a north-east wind for several hours together, without even covering the plaister with his hat. Upon this the ulcer became dry, an erysipelas began to appear, and in a short time be-
came

came as truly formidable as any erysipelas I had ever seen ; for the whole head was enlarged to an enormous size, small blisters began to arise, and the patient had a smart fever, with a delirium. I knew the whole of this mischief arose from the pericranium being obstructed, and inflamed by the cold air ; and seeing that an erysipelas is never the consequence of large wounds in the membranes where there is a free discharge, I enlarged the wound, which I dressed with digestives, and applied a neutralized cerate to the whole head. Blood was taken from the arm, and Glauber's salt given inwardly ; by which means an exudation arose under the application, the wound digested, and as the discharge increased, the fever and delirium lessened, and were soon entirely removed by these evacuations. Now in this instance, the dangerous symptoms manifestly arose from accumulated lymph ; and I have in the course of my practice seen many instances of the same kind, which were always
cured

cured by bringing on a discharge from the part.

Local erysipelata of the extremities, how to be treated.

Local *erysipelata* of the extremities when slight, require not any treatment different from that described in the method of cure in a simple inflammation of the skin. By applying remedies, which render the nerves insensible to irritation, we frequently have it in our power to suppress inflammation; and this practice often prevents much mischief in the beginning of the disease of which we are now treating. And though the inflammation should have made considerable progress, yet before great obstruction has taken place, we have several times seen, when seated in the extremities, the Arabian method of applying linen cloths, wet in cold water, and renewed as often as they become warm, entirely remove the disease by extinguishing preternatural heat, and perhaps by preventing an increase of irritability in the part. The cold juices probably produced the same effects, and they frequently must have

have been successful, otherwise they could not have stood their ground full thirteen hundred years. It is in this instance where the preparations of lead, either in cataplasms, or in ointments, as the case may require, do good service by their sedative quality. I have more than once seen the common remedy of spirit of wine and ointment of elder, cure an erysipelas in the face, arising from a blast of air, in a few hours. Spirit of wine, no doubt, is a powerful sedative; but what we have said about repellents, takes place in this instance, and I would never apply it unless the disease was slight, and I was certain it was local: but it is obvious none of these remedies can be used with advantage while external stimuli interfere. And where the vessels of the part are much loaded, deobstruents, and those applications which make a discharge, should take place; otherwise the juices accumulating may extend themselves to the membranes beneath, and occasion ill consequences.

Repellents to be avoided.

A woman

A woman had an erysipelas on the side of her face, which began about the ear, and extended itself upward, covering part of the temporal muscle, and that part of the forehead. Drying applications had been used, and a dissolution of the membranes underneath was the consequence. Many sinuses were formed adjoining to the bone, and several openings, which by proper treatment, might have been avoided, were necessary to accomplish a cure: but the manner of preventing such accidents will be understood from what will be said of critical *erysipelata*. As to internal treatment, both bleeding and purging, if necessary, may take place with advantage; as we have nothing to fear from morbid matter re-entering the blood. Nor is there any thing which so powerfully renders the whole state of the vessels pervious, as saline purges: which together with the external treatment already mentioned, will in general be sufficient for the purpose.

CHAP,

OF CRITICAL ERYSIPELATA.

Erysipelata of this kind differ according to the degree of acrimony and quantity of the matter expelled. If the quantity is small and not very acrid, the subsequent inflammation will be mild, the skin only being tinged with the disease. When greater, the citron-colour is stronger; and when the disease is considerable, matter is discharged, which occasions a roughness

upon the skin, or little scabs resembling bran. When still more inveterate, the skin is *dilated* and *thickened*, an ichor is discharged, which by irritating, invites a flux of humours from all the **neighbouring parts**, and **forms** scabs and blisters that **terminate** in superficial ulcers; and in excess of acrimony, the skin is mortified and dissolved, unless prevented by art.

How to be
treated.

Now wherever matter is expelled from the habit, it is the business of the assistant to finish the work which nature has begun; and for this purpose we should solicit a discharge by the skin. If the inflammation is slight, and gives little or no disturbance, topics may not be necessary; as the offending matter may itself transpire. Where it is great, the accumulation of acrid lymph may be attended with the most untoward consequences, by dissolving the parts it immediately affects; and topical remedies should be applied capable of promoting a discharge. For this purpose

pose a neutralized ointment will often be found effectual ; but when great inflammation requires great relaxation, a neutralized emollient cataplasm is preferable.

We do not always put the same proportion of neutral salt into the same quantity of ointment or cataplasm ; different degrees of irritability requiring different degrees of strength in the composition, in the same manner as we vary purges in different constitutions. This can only be learned by attending carefully to the different appearances of inflamed parts, under different degrees of irritability ; to the general aspect of the patient, to the structure of the skin in different people, and to the effects which topics may at any time have produced. Sedatives are often advantageously joined ; Glauber's salt and the vinegar of lead united in a poultice, frequently mitigate the effects of each other, lessen irritability, and remove obstruction at the same time. But as soon

as a proper discharge has been made, stimulants are no longer necessary, and any mild ointment will finish the cure.

Much depends, however, upon the manner of making poultices ; for if they are left to the care of people unacquainted with this business, as frequently happens, they commonly turn out very bad applications, by becoming dry and inflaming, instead of removing inflammation from the part. A cataplasm can never be a good one, without long boiling, which gives it a proper consistence, whence it lies easy without hardening *upon the part*. Four ounces of white bread sliced, one quart of milk, and an ounce of hog's-lard, boiled slowly together, till the poultice acquires such a consistence, that it will not stick to the hand ; will answer every end, that can be expected from an emollient application. But poultices are very inconvenient remedies when the disease is seated in the head, or face ; wherefore we
here

here prefer the other applications recommended, when the disease has risen so high as to make topics necessary.

In regard to bleeding, I agree with Hoffman *, that we may occasion a retrocession of the offending matter, or prohibit its expulsion ; unless in plethoric and robust constitutions, where it is sometimes useful by increasing the action of the vessels and giving room for the matter to pass off. Where the disease does not rise very high, I just keep the bowels open by saline purges, and suffer it to be discharged under the applications advised ; which, if I can judge from my own experience, will always happen when the crisis is complete. This may be known by the rigor and fever terminating when the inflammation comes on ; and though a subsequent symptomatic fever should afterwards appear, it will readily be distinguished by comparing it with the fever

* Praxis Clin. Inflamm. de Erysipelacea.

which usually accompanies local inflammation.

If the quantity of matter to be discharged from the blood is very great, and the topics do not keep the vessels sufficiently unloaded, I commonly give saline medicines, that will either pass off by sweat or urine: on those days we do not open the bowels, nor do I ever remember an erysipelas end otherwise than well, under this treatment, when seated in the extremities. But when the flux of humours falls upon the head, more active proceedings are sometimes necessary, to prevent a suppuration of the membranes covering the brain. Therefore the doctrine we have maintained, about a local erysipelas of the head, holds good in this instance; for though critical erysipelata often require seven or eight days before they begin to terminate, and will not by any means be removed before that period; yet, if we suffer the vessels of the skin to be overloaded,

Critical
erysipela-
ta of the
head.

loaded, the patient may be destroyed before the disease has spent itself. This I am pretty clear I once saw happen, in consequence of the doctrine that topics were improper, in a man where the disease, after increasing six or seven days, had swelled his whole head to a prodigious size indeed, and his face was almost covered with incrusted lymph. His fever bore no proportion to the swelling; he was stupid and insensible when I first saw him, and death prevented an opportunity of giving him relief. The danger may be estimated by a delirium accompanying very great swelling; and the vessels should be unloaded as quickly as possible, by every means in our power. Beside applications which promote a discharge, bleeding, if the strength of the patient will permit, and larger doses of purging neutral salts should take place, to make an immediate derivation from the head.

On the Cure of an Erysipelas.

Blisters to the back, do good service in this instance, but upon the head or behind the ears, I think, they should be applied with caution ; because, for a time, they increase local inflammation when laid very near it, and where it is already great, they may aggravate the disease in so important a part to the destruction of the patient, before the discharge they occasion can possibly do any good. Dr. Freind * says, “ experience has convinced me, that when “ the head is affected with an erysipelas, “ and there comes on a *coma*, a delirium, “ or convulsions, wherein the brain is evidently attacked, the only hope is from “ purging.” And there cannot be any doubt, if blisters and topical purging do not speedily remove the disease, internal medicines most capable of rendering the vessels pervious should be given ; for it is better to hazard the chance of carrying the *materia morbi* off by the bowels, than

* De Feb. Com. iv. 285. fol. edit.

suffer

suffer it to remain upon a part where it will most likely kill the patient. I have seen the practice of this learned physician successful, where *coma* and delirium arose in this disease in strong habits. Betwixt the days of purging I commonly give saline deobstruents ; and the feet may be put in warm water. But seeing how effectually the discharge from a wound in a local erysipelas of the head, accomplishes a cure, may not making a proper wound through the pericranium, and hastening digestion, be an adviseable practice in this instance, in cases of exigency, where blisters laid upon the back, and purging, which make a powerful derivation from the head, fail in giving speedy relief ?

This is the treatment which I have found successful, when the erysipelatous matter is thrown off with vigour ; but it sometimes happens that nature is incapable of expelling the disease properly : the inflammation, perhaps only just shews itself, and a

B b 3

fever,

When the
crisis is in-
complete.

fever, sometimes with delirium, evinces that the crisis is incomplete ; under which circumstances different steps must be taken.

After clearing the *primæ viæ* with a clyster, with infusion of senna and manna, or any gentle purge, nature should be assisted by warmer medicines, in determining the *materia morbi* to the skin ; and for this purpose I have given the *pulvis contrayervæ*, crude *sal ammon.* and Mindererus's spirit joined, with wine-whey betwixt the doses. The active preparations of antimony sometimes do service ; blisters are often very useful ; and in great lowness, mountain or Madeira wine is beneficial. The matter forming a common abscess in the groin of a gentleman of relaxed fibres and weak constitution, was absorbed in one night's time ; and, except wearing a soft mild plaister upon the part, no farther notice, by his own desire, was then taken ; but in about three weeks or a month's time he was seized with a most violent

violent rigor, succeeded by a high fever; and a very slight erysipelas shewed itself upon the lower part of the abdomen, near to the place where the tumor first appeared.

An antimonial fever-powder was given, which procured several stools, and brought on a gentle sweat. A blister was applied to the inflamed part, which increased the erysipelas greatly. His pulse forbid great evacuation. The sudorifics just mentioned were prescribed, under which treatment he soon recovered. Sometimes I have applied sinapisms to the inflamed part, which have had a desirable effect; but whenever nature shews this embarrassment in her work, no time should be lost; for the erysipelatous matter will frequently recede in a few hours, and every attempt may be incapable of relieving the patient. Toward the end of the disease, the bark, either alone or joined with snake-root, may be advantageously given, if the patient's

strength requires such assistances. This kind of erysipelas, or rather erysipelatous fever, is sometimes epidemical, seizing those of weakened relaxed habits: perhaps the erysipelas Mr. Bromfield * speaks of, was of this species, where, for the most part, the patient died under bleeding, purging, and cooling medicines; while those supported by cordials and the bark, applying blisters as they became necessary, and keeping the bowels open with clysters, mostly recovered.

Some people are subject to frequent returns of an erysipelas, owing mostly, I believe, to the absorption of crude matter, which ought to have been discharged at the place pointed out by nature; because I have several times seen it happen where I could trace it from the time matter in an abscess and erysipelata had disappeared without any sensible exudation or discharge. And notwithstanding every ery-

* Chirurg. Obs. p. 108. vol. i.

sipelas which afterward appears, is an effort of nature to discharge the offending matter; yet not getting through the extremities of the vessels, it in a great measure returns into the habit, and lays the seeds of a future inflammation.

I have frequently tried purges, and the purging waters, in this instance, without any other effect than prolonging the intervals of inflammation; nor have I seen any better success from a long course of alteratives and deobstruents: so difficult is it to eradicate particular kinds of matter by medicines, when it has tainted the habit. But if a discharge is procured from the part, whenever the inflammation comes on, and the running is continued by the application of proper remedies as long as possible, the matter expelled will be prevented from returning into the system, and more ease ensue, provided the patient lives upon a light cooling diet, and avoids every kind of food which is fat or greasy:
for

for fat or oily things increafe this difeafe, as Guido de Gauliaco long fince obferved, and as experience has ever fince taught.

Hitherto we have chiefly confidered eryfipelata as affecting a particular part only, though we have already fhewn that this difeafe fometimes, more or lefs, invades all the membranes in the body. We fhall now more fully treat of that matter, beginning with the eryfipelas which approaches neareft to a common inflammation. It is attended with eryfipelatous efflorefcences ; but as the difeafe I allude to, has not been represented in this light, I will describe a cafe which lately fell under my care ; and recollection will prefent to the minds of thofe converfant in bufinefs, a variety of instances, which muft have happened under their own obfervation ; as different degrees of this complaint are far from being uncommon.

A woman, about forty-five years of age, was feized with a fever, for which ſhe was
twice

twice bled ; and some medicines had been given before I saw her. In about six days from the seizure, an erysipelatous efflorescence appeared upon her legs, arms, and breast ; her throat was inflamed, and sore ; she had a violent cough, with a difficulty of breathing ; and complained of pain in making water. Her pulse was rather weak, beat about a hundred and twenty strokes in a minute, and she was a stranger to rest. Considering this case to be an inflammation of the membranes, I pursued the antiphlogistic plan ; but did not direct the loss of more blood, because her pulse, I apprehended, would not bear it. Calomel was given, worked off with Glauber's salt, and infusion of senna ; and she took an anodyne saline draught every night. Some oil and syrups were given, now and then, in hopes of easing her cough, by lessening irritability ; an emollient ointment was applied to the inflamed parts which were painful ; she had
three,

three, four, or five stools every day, procured by a mixture of infusion of senna, regenerated tartar, and manna; and she drank diluting liquors. By this method she began to spit freely, her difficulty of breathing diminished, her cough ceased, and, in about a week, every symptom of inflammation disappeared. She now spat inspissated lymph resembling matter, and some light cooling bitters finished the cure. Nor did I pursue slow and continued purging without experience, having repeatedly found it successful in similar complaints.

A young man, after riding in an open carriage two exceeding cold frosty days, was seized with a swelling about his throat and face; a fever came on, the membranes on the inside of his throat were inflamed, they had an erysipelatous appearance, and in a few days more, an erysipelatous efflorescence presented itself all over the body. His pulse at one hundred and twenty was rather full, and his lungs
5
seemed

seemed to be loaded. He was strong and vigorous, and the disease appearing to be a *simple inflammation* of the membranes only, from taking cold, I treated it on the antiphlogistic plan. He was bled once, and purged occasionally; on the intermediate days other cooling remedies were given, and emollient gargarisms were daily used; under which treatment he spat up foetid matter from his lungs and throat, and speedily recovered.

*On Erysipelata occasioned by contagious
Miasmata.*

MIASMATA occasioning an erysipelas, seize upon those membranes most exposed to their effects, and therefore the membranes lining the throat and stomach, are the parts on which the disease first shews itself. This in the beginning is local, as is evident from an immediate stop being sometimes put to the complaint, by wash-

Erysipelas
of the *primæ viæ*.

washing off the *materia morbi* in the operation of a vomit. But if this step is neglected at the very onset, while the *miasmata* lodging upon the *mucus*, natural to these parts, may be readily washed off, they lay hold of, and inflame more deeply, the membranes which line the *fauces*, &c. and from thence all the *mucous* membranes in the body. Because, not only the membranes lining the nose, ears, urethra, and vagina, become affected; but the efflorescence we have spoken of, appears in the skin, and shews that the other parts of the body are equally affected. Wherefore this is not a crisis, as some have imagined, but the characteristic of an inflamed membrane, and a symptom of the greatness of the disease.

Now different kinds of *miasmata* produce different effects, and must be treated accordingly; reflecting on the variety that may again arise from the season of the year, with the situation and habit of the patient. But in every instance, *corrosive*
matter

matter will inflame the membranes it happens to seize on. In consequence, if not prevented, they, like membranes affected with inflammation in other parts of the body, will putrify and separate in rags; ulcers will be formed, and extend themselves, by the acrid matter they produce, inviting by irritation a flux of humors to the parts; and the whole body will be contaminated by matter absorbed.

Hence it follows, that inflammations of the membranes in the *primæ viæ* should be treated with the same intentions as an external inflammation under the same predicament; for we should immediately attempt to remove from the parts affected, the *stimulus* or *materia morbi*. If we fail of success, we should, if possible, subdue the inflammation that takes place by discussion; but if putrefaction unavoidably comes on, we are to correct the acrid matter, and discharge it occasionally, to prevent its being with force absorbed into the

In what manner to be treated.

habit. Such other internal medicines, should at the same time be given, as are capable of supporting the patient's strength, and of correcting its virulency when got into the blood; because all malignant matter lessens or destroys nervous energy.

In the latter end of the year 1779, an epidemic erysipelas prevailed in this place, and neighbourhood, beginning in the fauces and throat, and extending itself over the whole body; called the scarlet fever, or *scarlatina anginosa* as described by Dr. Withering, of Birmingham. The inflammation in the throat was of the erysipelatous kind, but approached nearer to the *angina inflammatoria* than commonly happens. I never saw a disease so suddenly fatal if neglected, or so readily cured if taken in time. The two persons first seized in this town were a brother and sister, the one seventeen, and the other about twenty years of age; sickness, vomiting, and looseness came on, but so far
from

from being violent; that the family imagined these symptoms would of themselves soon disappear, and therefore neglected to call in timely advice. Nor did they complain of their throats, otherwise than that they seemed rather raw; but they had great weight at the precordia, great dejection of spirits, a slight delirium, their eyes had a ferret-like appearance, their pulse was exceeding quick and very feeble, and they both died in about eight and forty hours from their first seizure, with all the symptoms of nervous power being destroyed. We obtained leave to open the boy, and, to our great surprise, found not the least vestige of so violent a disease: the whole viscera were perfectly sound, free from any signs of inflammation; the inside of the stomach was not in the least eroded, but the gall-bladder, and its ducts, were loaded with bile, which might probably arise from that irritation with which the

viscera in the abdomen were manifestly affected. The vomiting and purging probably arose from this cause; and as neither inflammation nor putridity appeared, the sudden death, and the symptoms attending it, seemed to be owing to the contagious *miasmata* being powerfully sedative, and that it had alone destroyed these two people by extending its deadly influence from the nerves of the *primæ viæ* to the whole nervous system. Nor are an irritating and a sedative power in the same substance incompatible, as many are known to have both these properties.

In the first patient I prescribed for in this case, the affection at her stomach seemed to indicate a vomit; she complained of an acidity upon it, and had not had a stool that day; wherefore I gave a quarter of a grain of emetic tartar, ten grains of magnesia, and the same quantity of rhubarb in powder, to be repeated according

according to its operation: but two doses procured sufficient evacuation, and the patient was quite well the next day. After this, I found that vomiting and purging, almost constantly, if properly pursued, put an end to the disorder; and in some instances purging with calomel and salts, or, in the very beginning, with salts alone, were quite sufficient to prevent farther mischief. So effectual was any remedy that cleared the first passages of the *materia morbi*, that a young fellow was cured by large draughts of gruel. He was butler in a gentleman's family, betwixt twenty and thirty years of age, and, along with a fore throat, was seized with a purging, vomiting, pain at the *præcordia*, and such a violent depression of spirits, that the family was apprehensive he was in great danger; but having seen the effects of vomiting and purging, among the other servants, they determined (that no time might be lost,

being at some distance) to encourage them by very large and frequent draughts of water-gruel, which had the desired effect; for it passed both ways very freely, and next day he was well. Nor is the death of those, where a purging spontaneously supervenes, any objection to carrying the disease off in part by the bowels; for we are to remember, that those who lived, bore much greater evacuation downward than those who died; because in the latter the *materia morbi*, though it purged and vomited, did not carry itself off, but, accumulating, killed the patient by its sedative property acting upon the nerves: whereas both vomits and purges prevented this catastrophe by removing the offending cause. Whether this reason for the different effects of spontaneous and artificial purging be true or false, we can with truth aver, that vomits never answered perfectly well without they also purged; and that we have seen many in which

which the disease was nipped in the bud, and cured by purging alone. Nevertheless, we did not neglect applications to the throat; for notwithstanding this was only attacking a part of the disease, yet, as it gave the patients relief, and made them swallow with more ease, it was a circumstance worth attending to. The remedy we had recourse to on this occasion in the beginning, was a very common one, composed of equal parts of sugar and nitre, which penetrates into the inflamed parts, stimulates them to discharge their contents, and by unloading, mitigates this part of the disease. A scruple of this powder, suffered to dissolve in the throat about every two or three hours, brought on a free evacuation of saliva and phlegm; the mouth and fauces were washed with barley-water after it was dissolved, and had brought on a spitting: nor were we scrupulous of using it, because it is in the hands of every old wo-

man ; for after forty years experience, I do not know any other remedy so certain and effectual in promoting a discharge, and thereby removing inflammation in the throat ; nor did it often fail in the present instance, by repeating it two or three times a day, to do more or less service ; and frequently, I think, where the disorder was not carried off in the very beginning, prevented a separation of some parts of the membranes, *in the throat*, taking place.

However, where evacuations were not at all, or but imperfectly made in the beginning, and the disorder, owing to constitution, did not kill the patient in a day or two, all or most of the membranes in the body became inflamed ; as was evident from the efflorescence coming on, and from the nostrils, ears, and some other natural passages being affected ; attended with a fever, in which the skin was very hot, and the pulse seldom less than one

hundred and thirty strokes in a minute, often more : even under these circumstances emetic tartar, by clearing the primæ viæ, frequently removed all the symptoms, and fairly evinced the connection between this and the other parts of the body.

But the membrane lining the alimentary canal by this time, in some places, became dead white and separated, and an ichor, like the ichor from an ulcerated erysipelas in the face, was discharged upon the neighbouring parts ; which no doubt proved a *fomes morbi*, by irritating the intestinal canal. It was evident from the excoriation which sometimes appeared about the anus, that the whole of this tube was more or less affected with the disease ; and if a vomit or two did not relieve the patient, we had recourse to those means which were likely to correct the ichor lodged in the bowels, to defend the parts against its acrimony, and to carry it

off occasionally, with safety to the patient.

For these purposes we had the ulcers in the throat touched two or three times a day with a mixture of honey of roses, and spirit of salt, and now and then washed them with tincture of roses, or Port wine and water, or the like; or sometimes, where the mouth and throat felt very sore and raw, we advised the patient to swallow gradually a kind of linctus made of conserve of mawl flowers, honey of roses, and Armenian bole. But we carefully avoided syringing, as a method capable of doing the greatest injury. I first took the hint from the bad success of a surgeon in the cure of sore throats, who was fond of this practice. Indeed, he frequently, I am convinced, lost his patients by attempting to subdue the disease by storm; and in one instance I knew he brought on a mortification in a common *angina inflammatoria*, by irritating the
part

Syringing
injurious.

part with the stream from the pipe. A warm fomentation of milk will frequently relieve inflamed eyes; but if the same application was impelled into the eye with force from the syringe, there is not any doubt but it would increase the disease. It is just the same in inflammations of the tonsils, &c. for the nerves are equally exposed, and susceptible of equal impression; and unless they happen to be defended with dead sloughs, whatever may be the nature of the injection, it will most likely do harm. Nor is syringing necessary, as gargarisms, fumigations, or touching the part with lint fixed upon the end of a strong probe, and dipped in a proper mixture, will answer every end that is required.

In hopes of correcting acrid matter, and defending the excoriated parts against its effects, well made gruel, with spirit of salt in it, spirit of nitre and water, or whey made of milk, water, and juice of lemon,

lemon, were drank occasionally; and where medicines, to support the nervous system, seemed necessary, the pulvis contrayervæ was given. Spermaceti, or wax and spirit of salt, were given in the bark decoction, *after* the dead pieces of membranes began to separate; for though we no ways looked upon this disorder to be putrid, unless every kind of ichor may be said to be putrid, yet we gave this medicine to support the strength of the patient. For this purpose wine and water were allowed, and toward the end of the cure, wine alone. Where the heat forbade the use of the bark, starch and chamomile flowers in powder, or starch and the pulvis contrayervæ, in a draught composed of spirit of nitre and water, seemed to answer a good end in keeping the diarrhœa within bounds; probably by mixing with and lessening the power of the irritating matter, and in defending the nerves of the first passages against irritation.

Spirit

Spirit of nitre and water, or toast and water, to which wine was occasionally added, were commonly drank cold; the patient was kept cool, and above all, the bowels were opened once or twice a day, with a mixture composed of infusion of fenna, manna, and spirit of vitriol; supposing colluvies of any kind lodging in the bowels must unavoidably be prejudicial, Under this treatment the efflorescence died, the skin became scaly and rough, a swelling of the wrists and ancles resembling a rheumatism (the forerunner of a recovery) came on, and upon these subsiding, the patient was commonly restored to health. Seeing the manner in which the miasmata destroyed patients in the first instance, and in two more similar instances, we were cautious in the use of opium; and yet, when the disorder was advanced, restlessness seemed to require it. Wherefore we sometimes gave three or four drops of laudanum about every eight or ten

ten hours, in some of the medicines described: and we think without inconvenience, owing perhaps to the stimulus the inflammation kept up through the whole nervous system. However, it was hard to say whether the patient received any benefit from it or not, because our general plan was at the same time pursued, which we had reason to think was right; for out of more than two hundred thus treated, none died.

Sometimes, when the patient was not destroyed in the beginning, and nothing was done, the disease was protracted to a great length. I was called to several who had been ill three weeks or a month; they were greatly emaciated, had an aphthæ, a continued fever, with scarlet lips, and an exceeding quick weak pulse. Even in these cases we began the cure with small doses of calomel and rhubarb, and repeated them occasionally. Nor had we reason to repent of our proceedings,
for

for they not only carried off offending matter, but seemingly made way for the use of the bark, spirit of salt, &c. and the patient often recovered while he was taking these medicines. We never met with a pulse that indicated bleeding, or had recourse to blisters; because they appeared to be no ways necessary or likely to be useful. Nor did we ever want any other remedies than those described, except that we sometimes laid sweating plaisters upon the throat at the beginning: and in an advanced stage of the complaint this application was sometimes necessary, from the glands swelling externally below the ears; and I suppose it did service, because the swelling subsided when it was timely applied; whereas in one instance, where nothing was done, I just came soon enough to see the boy dying of suffocation from a swelling of his face and throat. I saw some children where no evacuation had been made, and the disorder terminated

terminated in a month or five weeks in an anasarca, attended with bleeding at the nose and mouth, and bloody foetid stools, seemingly from nervous energy being gradually lessened. But I had very little opportunity of ascertaining a method of cure by experience, two out of three patients I visited, all in the same house, dying before they could take medicines sufficient to do any service; and the other recovered, after clearing the bowels with gentle antiseptic purges, and taking the bark and elixir of vitriol.

Putrid erysipelas.

Experience, however, has taught that *miasmata* producing internal *erysipelata* are sometimes septic; yet, like those we have been speaking of, they ought no doubt to be removed in the same manner from the parts they first affect, to prevent putrefaction and its consequences: and there is every reason to believe, that the putrid sore throat, as it is called, has made greater havock than it would otherwise have

have done, for want of attention being paid to this particular. If putrid matter lodging upon the skin was to bring on inflammation, should we not attempt to prevent its making progress by washing it off? Why are not the same steps to be taken when putrid *miasmata* seize upon the membranes lining the fauces, &c.? And what reason have we to suspect, that the same treatment would not prevent the ill effects of putrid *miasmata*, as of a poison, seemingly from its sudden and deadly effects of the most deleterious kind?

Indeed, I am fearful the word *putrid* has done much mischief in this complaint, by leading some practitioners to a more early use of bark and myrrh gargarism than was consistent with the true intentions of cure: for these remedies in the beginning would increase the inflammation; nor would their antiseptic virtues, perhaps, be able to counterbalance the evils thus brought

brought on. Unloading the inflamed vessels in the throat by nitre, must tend at least to prevent an increase of inflammation in this part ; and if vomiting and purging, with the assistance of gruel, do not wash off the disease, antiseptics, if they are necessary, should be given ; but they should be of the cooling kind, such as spirit of nitre, or spirit of salt, &c. till a certain degree of debility coming on, the sloughs in the throat, if any are formed, begin to separate, and then the bark may take place. But I think, with Dr. William Fordyce, that it is rendered more powerful by joining with it spirit of salt. I have long been acquainted with the powerful effects of this antiseptic, and have given it in much larger doses than that gentleman prescribes ; having found, by proceeding gradually, that a drachm, or a drachm and a half, may be taken in the space of twenty-four hours, with safety and advantage. An
emulsion

emulsion made of bark decoction, spermaceti, and mucilage of gum arabic, is a convenient vehicle to give it in; and we thus attempt to correct putrid acrimony, and to defend the nerves of the intestines at the same time. Some are great advocates for the use of fixed air in putrid diseases, and there is not any doubt of its having a most powerful antiseptic property, being probably the universal acid so long known. But on the other hand, its sedative powers are equally great, and whether there is no objection to its use in these instances, experience only can determine.

The ulcers may be touched with the spirit of salt and honey of roses, before described, and washed with the gargarisms then mentioned; and in cases of great putrefaction, tincture of myrrh and tincture of roses may be joined. It is not uncommon, though the disease is of a putrid nature, for symptoms, somewhat

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resembling

resembling an *angina inflammatoria*, to appear at the onset; but these are of short continuance, and may be distinguished from inflammation unaccompanied with putridity; for the *angina inflammatoria* takes its rise within the gland, and the affection is confined to the nostrils, which are prominent and vigorous; whereas in the *angina maligna* there is less vigour in them, and the neighbouring membranes being first affected by an external cause, an erysipelas, in a greater or less degree, spreads itself over the fauces and throat. There is besides commonly a weight and uneasiness at the præcordia, with dejection of spirits from the effects the *miasmata* have upon the nerves of the stomach; all which are sufficient to put us upon our guard in the treatment of the patient. The other symptoms have been so often described by different writers, that it would be taking up too much of the reader's time to recite them; and indeed,

deed, when the cause and seat of a disease is known, the cure, if it can be accomplished, readily follows. The bowels should be occasionally cleared of the ichor, constantly draining into them, by tamarinds and rhubarb, or some other gentle antiseptic purge; but if, notwithstanding, it should occasion a diarrhea by irritating the nerves of the intestines, the number of stools may be lessened and brought into proper bounds by the powder composed of starch and chamomile flowers, without any danger of confining matter which ought to be discharged. If cordials become necessary to support the patient's strength, I know of none better than wine.

Besides these, I have met with another kind of epidemic erysipelas in the throat, but no ways dangerous: the fauces, *velum palati*, &c. have an erysipelatous appearance, and the latter is puffy. It frequently disappeared without any assistance, otherwise a dose or two of cooling physic,

and a common gargarism put an end to the complaint. Hence it is evident, that whatever irritates the membranes, may bring on this disease, attended with different effects or consequences, according to the nature of the irritating cause and the situation of the part upon which it first acts; or, in Sydenham's words, that epidemic erysipelata may vary according to difference in constitution, or years.

C H A P.

C H A P. VIII.

OF THE INFLAMMATORY RHEUMATISM.

THE inflammatory rheumatism is attended by a fever, and seems to border on the erysipelas; the inflamed parts having in some degree an erysipelatous appearance, owing probably to the membranes and ligaments being chiefly the seat of the disease. It is sometimes accompanied with an efflorescence, like the inflammation of the membranes before spoken of; and shews itself in different parts of the body at the same time, according as they are more or less affected. Nevertheless it is an inflammation of a particular kind, that differs from the erysipelas, and from all other kind of inflammations, in the offending matter being glutinous. It seizes particular people only; and, if I am not very much mistaken, we may often trace it to be hereditary. These people, and those who have by any other means acquired a rheumatic

The membranes and ligaments the seat of this disease.

Seizes particular people.

And does
not suppu-
rate, &c.

diathesis, will be more particularly affected by alterations in the air, and the other causes which are known to bring on a fit of this complaint. The degree of irritability will rise to 150, and yet in general neither suppuration or mortification is the consequence; which may be owing to the inactivity of the matter confined in the inflamed parts: and whether it becomes glutinous before or after it gets out of the vessels is not material, as a disposition to this state is a pretty clear proof that it is free from much acrimony.

Cured by
purgings.

From this account it is evident there is no other way of relieving the patient but removing his malady by discussion; nor do I know any complaint which more certainly gives way to this treatment: whereas if neglected, it frequently becomes chronic, and renders the patient a cripple by inspissated lymph stagnating about the joints. Blood, therefore, may be taken away according to the urgency
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of the symptoms, and the strength and age of the patient ; but purging, as in other inflammations of the membranes is the remedy on which we are in the first stage chiefly to depend ; therefore I commonly order calomel twice a week, and an opening mixture of infusion of senna and regenerated tartar, to be taken as often as is necessary to procure three, four, or five stools a day ; and an anodyne draught to allay the irritability of the habit, every night going to bed, till the symptoms of inflammation are sufficiently abated. I have sometimes directed the purging neutral salts to be given at proper intervals, and regenerated tartar, with essence of antimony, on those days when evacuation is not made by stool. Yet in general I prefer the other method ; but a spare cooling diet should accompany which ever of the processes are pursued.

A remarkable case, shewing the good effects of purging in this complaint, hap-

pened in my practice near thirty years ago ; and though I have never since wished to make so large an evacuation in the same space of time, yet, by going gradually to work, and pursuing my intention regularly, evacuation by stool has always abated heat, pain, and their consequences. A gentleman, twenty-eight years of age, subject to the inflammatory rheumatism, upon taking cold, was seized with a severe fit of this disease ; and notwithstanding bleeding, keeping the bowels open, the use of sudorifics, antiphlogistics, blisters, the bark, opium, and every other remedy a physician and myself could think of, yet the pain and inflammation continued more or less violent for sixteen or eighteen weeks : and the only hope which remained was, that the disease would wear itself off in time. However, being costive, it was necessary to open his bowels ; and for this purpose I chose an alterative, which had been recommended to me as a good

good medicine in the rheumatism, composed of three grains of *pil. cochiae*, two grains of calomel, and one grain of opium, from which, in the space of twenty-four hours after it began to operate, he had, according to his own account, forty or fifty watery stools, which entirely carried off the disorder. Nor was he weakened by so large an evacuation; but his spirits rose as the body was unloaded, and he has ever since been much freer from this complaint than usual.

Since that time I have constantly observed the good effects of purging in this complaint, in removing the symptoms of inflammation; whether by the medicines mentioned, or by the active preparations of antimony. But when the pulse becomes soft, and the inflammation is abated, the lymphatics which have been weakened by distension, must be enabled to perform their office of absorption, by giving the bark at first with neutral salts,

And the
bark, &c.

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and

and afterward by itself, to finish the cure. I never knew the patient remain uncured, when this method took place immediately after the antiphlogistic treatment described had done its duty; and without this step the cure will often remain unfinished, from the juices which are out of the course of the circulation, remaining in the parts upon which they are deposited.

Topics.

To avoid this inconvenience as much as possible, the use of topics should not be neglected. When the inflammation upon *particular parts* is very great, emollient cataplasms, or emollient ointments, may be applied, and topical bleeding has sometimes done service; but, excepting when the parts are very tense, I give preference to a cerate composed of the *emp. de min. fus.*: a small portion of wax, oil, and crude sal ammoniac, because it lies easy, takes off tension without over-relaxing, seldom fails promoting perspiration, and answers every end that can properly be pursued

pursued by outward means, while any degree of inflammation exists. But this being over, warmer and more active medicaments gain preference: I have often seen the most desirable effects from a volatile plaister made of diachylon, soap, crude sal ammoniac, and a little oil, suited to the degree of irritability of the patient: or, inflammation being gone, dry friction, or with flannels upon which æther or the aromatic volatile spirit is sprinkled, &c. may do good service; or, if necessary, some of the warm baths may finish the cure.

But an inflammatory rheumatism, it is well known, sometimes seizes people of weak relaxed fibres, who are incapable of bearing great evacuations; and were the inflammatory symptoms to be entirely removed by purging, greater debility than is consistent with health would be the consequence. Nevertheless, purging more or less, in proportion to the strength of the patient, is necessary. It is in this case

Treatment
under
weak relaxed
fibres.

case that *spirit. Mindereri*, antimonials in small doses, Dover's powder, gum guaiacum, or saline and cordial medicines united, commonly relieve the patient, by promoting sweat. Blisters are often recommended under these circumstances; and at the decline of the disease, when a stimulus is necessary, they may perhaps be serviceable. But to form a right judgment of what kind of treatment is proper in different degrees of this disease, under different circumstances, we should reflect upon the two extreme points, and the gradations betwixt them; and as it declines from high inflammation, and strong fibre, to a direct contrary state, medicaments of all kinds should gradually be changed from those which are highly cooling, to those which attenuate and stimulate by their activity and warmth.

But to prevent the misapplication of the methods advised, it is necessary to remark,

mark, that there are three kinds of chronic rheumatism. That which follows the inflammatory rheumatism, from glutinous or inspissated lymph, stagnating in the interstices of the membranes and other fibres: another, with similar swellings about the joints, which arises from a deficiency in the office of the absorbing vessels, without ever being preceded or accompanied with inflammation: and a third, unattended with either inflammation or swelling. The second sort requires no peculiar treatment from the first, when the inflammation is subdued; but the third, though very common, is a disease which I think has never been rightly understood; and I cannot pass over this opportunity without mentioning what has occurred to me, and what I have learned by practice, concerning this malady.

Three
kinds of
chronic
rheuma-
tism.

On the Nervous Rheumatism.

The species I am speaking of is unattended with swelling, or external inflammation; has always been ranked among chronic diseases, and by some has been called the wandering or scorbutic rheumatism: but we are led to give it the epithet *nervous*, for reasons that will presently appear. It is that kind, in which the patient complains of obtuse pain in his wrists, shoulders, and knees, which shifts about from joint to joint, and from one part of the body to another; especially in cold, raw, damp weather, or when the wind is easterly; as he receives intervals of ease when the weather is in an opposite state. The pulse is not perceptibly affected. The tongue is sometimes white, little ulcers in some instances appear upon the edges of it; on the inside of the cheeks, and upon the lips: and the pa-

tient is sometimes troubled with the piles. Dr. Armstrong, who has described the symptoms of this complaint in his Medical Essays, * says, " It is perhaps the
" most universal of all the diseases endemic to this island; and that the changes
" from ease to pain are sometimes so sudden, and appear so unaccountable, that
" I have heard sensible people compare
" them to the supposed effects of witchcraft." To the best of my remembrance, he is the first writer who has given this disease a place by itself, though he seems not to have understood its *seat* or cure.

Immediately after I had given balsam of Peru to Mr. Thomas Wilkes †, I began to conceive an opinion that the disease above described often originates in the viscera; because this young gentleman had most of the symptoms just mentioned, and because they instantly gave

* P, 34. † Case the 7th. Sympath. of Nerves.

Seat of
nervous
rheuma-
tism.

way to the nerves of the *primæ viæ* being affected with this medicine. I have therefore taken every subsequent opportunity of examining farther into this matter, and I think I have now reason to be satisfied that I am perfectly right in my conjecture.

This I apprehend will easily be conceived by those who have attended to the connexion betwixt the nerves of the viscera and the rest of the body; and those who have not, will easily see it, by reflecting upon various incidents which almost daily come before them. Indeed, there cannot be a clearer instance than that we have just referred to, or the intolerable pain in the abdomen, and about the uterus, some women, especially of their first children, suffer from having their breasts drawn. They often, it is well known, complain of an inward drawing, while the nerves at the nipple are stimulated by suction; and the pain, in very irritable habits,

habits, is sometimes so great, as even to preclude the mother from giving milk to her own infant. A gentleman, with a cancer in his eye, had a pain in his hip, knees, and ancles, which was called the rheumatism, till a scirrhus liver, and a scirrhus mesentery, discovered that these pains arose, by consent of parts, from a diseased viscera. Persons troubled with the stone will often have a tingling in their fingers when they make water, and there are innumerable other instances which prove that one part of the brain being touched, the whole is affected.

The disease in question is often preceded by the stomach fever described by Avicenna, or what has been called the mesenteric or visceral fever by other writers; accompanied with a white tongue, wind, pain, and heat at the stomach, acid eructations, spasms in the sides, &c. And are not the little ulcers and piles (when they happen) a proof of the seat of this

E c

complaint?

complaint? May we not conclude, from the instances adduced, that whatever brings on a particular kind of irritability in the nerves of the *primæ viæ*, will produce the same symptoms?

Different
methods
of cure
necessary.

The method of cure is a farther proof of the truth of the doctrine advanced; but before we proceed, we must observe, that though taking off this preternatural irritability, is the main object of attention, yet the same method of treatment is not always successful, owing to variety in the cause of the malady. When the tongue is white, and rather furred, accompanied with heat in the stomach, little ulcers in the mouth, the piles, &c. we always suppose preternatural heat in the *primæ viæ*, from some degree of obstruction in the villi, and small glands of the stomach and intestines, and find cooling deobstruents have a good effect. We begin commonly with a vomit, composed of ipecacuanha wine and emetic tartar; afterwards

afterwards calomel, soluble tartar, or sal polychrestum, and rhubarb, are given at proper intervals; and on the intermediate days, the bowels are kept open by sal polychrest in spermaceti, along with camphorated julep; by which means we abate inward heat and preternatural irritability at the same time. I have often known small doses of James's Powder frequently repeated, and camphor julep, do good service in this instance; and relief has frequently been given by powders composed of the compound powder of crabs claws, camphor, and nitre, and by Buxton water. It is in this species that ling-liver, brains, or Florence oil, are sometimes effectual; and I believe in the same manner that a liniment made of spermaceti and oil allays the irritability in fores, attended with heat: oil relieves this kind of rheumatism. Lastly, when the whiteness of the tongue, and other signs of heat, disappear, the *trifolium palustre* may finish the cure.

Now when great obstruction in the liver, or mesentery, occasions the nervous symptoms described, the disease must be treated with its proper remedies. But it sometimes, I think not unfrequently, happens, as in Mr. Wilkes's case, that preternatural irritability of the viscera, attended with rheumatic pains in the wrists, knees, and ancles, are unaccompanied with either heat or obstruction; and different kind of medicines to those mentioned are required to accomplish a cure, it being a spasmodic disease, for the most part accompanied with spasms of the stomach, abdomen, and sides. The tongue shews no signs of heat upon the stomach, nor do ulcers in the mouth, or the piles, ever appear.

It was this rheumatism in which tar-water did service; and I have seen gum guaiacum afford relief. It is an almost certain purge, and may be administered when medicines of this kind are wanted; because it warms and takes off that kind

of irritability which is subdued by invigorating the nerves. *Pil. Rufi* I have also found serviceable; but along with these, balsam of Peru, the warm gums, such as benzoin, *sagapenum*, styrax, myrrh, opium, camphor, the essential oils, and the bark, are the medicines from which we are to expect a cure.

C H A P. IX.

ON THE PHLEGMONOIDE RHEUMATISM.

NOTWITHSTANDING the common inflammatory rheumatism neither brings on suppuration or mortification, yet there is a disease of the membranes that much resembles it, which too frequently destroys the patient by a deluge of matter. After taking cold, he is commonly seized with a rigor, and a subsequent continual fever. He complains of deep-seated pains in his limbs, and in different parts of the body, resembling the rheumatism; an erysipelatous efflorescence sometimes shews itself in the parts deeply affected, which swell a little, without being remarkably painful when touched; and when it happens in the legs or arms, they become almost useless, and resemble rheumatic limbs. It is not uncommon for the fever and efflorescence to disappear in a little time; yet suppuration in different

The disease described.

rent parts of the body, unattended with inflammation, afterwards slowly comes on, and a hectic fever from absorbed matter not unfrequently closes the scene.

If the disease is capable of being dispersed, the methods laid down for the cure of the inflammatory rheumatism, under different states, may take place, and very often with advantage; but we must be active in our proceedings, otherwise the obstruction in the membranes covering the bones in the fascias of the muscles, and in other membranes of this sort, will become confirmed, and their dissolution an unavoidable consequence: but I will give a case or two of this sort, from whence I shall be better understood.

To be cured by dispersion, otherwise suppuration of the membranes, the consequence.

A man about thirty years of age, in apparent health, took a violent cold in the month of April, 1781, which brought on some feverish symptoms, and pain in his limbs resembling the rheumatism, ac-

Instances.

accompanied with a slight erysipelatous efflorescence in the skin. This last symptom soon disappeared; but though the pain remained, nothing regular was done, till it was too late to remove the obstruction; and then powerful deobstruents were tried without any effect. Many weeks having elapsed, abscesses at different times, without inflammation, appeared in several parts of his body, and manifestly began in the membranes covering the bones or muscles, discharging thin poor matter, as always happens under such circumstances. The first I think shewed themselves in his neck and in one wrist. Then another in one leg, which began in the membranes covering the tibia and fibula; a large collection of thin matter was formed betwixt these bones from the knee to the ankle, and upon letting it out, they were found bare. In a short time afterwards, another collection of matter, which had not occasioned any pain, was discovered

vered in the other leg about the joints, and upon the tendinous expansion which covers the *gastrocnemii* muscles; and by such time these were brought into a healing state, others appeared one after another on the outside of his thighs, in his feet, his wrists, arms, face, and in the membranes surrounding one eye: from all which there was a large discharge, and a slight hectic attended. Neither the bark, of which he took large quantities, nor any other remedy we tried, produced the least alteration in the inactive appearance of the sores; and at the end of three quarters of a year a suppuration in the lungs came on, and put an end to this unhappy man's sufferings.

Another young man, twenty-six years of age, exceeding vigorous and healthy, about the same time, and in the same state of air, was seized with this disease; and though the inflammatory symptoms soon disappeared, yet collections of matter upon

upon the membranous parts described, without inflammation, in a month or six weeks time began to shew themselves. After these were opened, fresh ones appeared, time after time, in different parts of the body, some of them, though without liveliness or vigor in the fibres, healed; but the patient was now taken out of our hands by his relation, a farmer, who imagined he could cure him, supposing himself skilled above most men in medicine and surgery. I hear he bled and purged him frequently; but instead of carrying off the disease, fresh collections of matter arose; a violent spitting of what my informant supposed to be matter, came on, and he died tabid.

I have seen several inferior instances of the same sort, and where the collections of matter were not very numerous, the patients have recovered; but the sores always healed exceeding slowly, the fibres being pale, inactive, and destitute of vigor;

gor; and what is very curious, the bark in none of the cases which have come before me, produced any sort of effect,

C H A P. X.

ON THE GOUT.

THE gout is another kind of inflammation which borders upon the erysipelas, because it has somewhat of an eryipelatous appearance, and affects the membranes and ligaments; but it differs from the erysipelas, because the fluid discharged does not possess the same degree of acrimony; and it also differs from the rheumatism, the juices not having a gelatinous tendency. In general, it neither occasions suppuration nor mortification, unless we suppose some kind of suppuration takes place when the ulcer accompanying chalk-stones is formed; but if this state is excepted, the disease always terminates by discussion. It is our busi-

ness

The gout, though it possesses the membranes and ligaments, differs from the erysipelas and rheumatism.

ness to enquire how far nature may be assisted in this work, for which purpose it seems necessary first to examine into the nature and cause of this complaint.

Notwithstanding what may have been said to the contrary, I join the general opinion that this affection is often hereditary; because I have known children born of gouty parents afflicted with it; because I have seen it inherited by the natural son of a gentleman in the station of a common labourer: and those persons whose ancestors have been troubled with the gout, are more subject to it than others. Yet it is true, it may very commonly be brought on by intemperance, and not unfrequently by contact; for many women, whose birth or mode of living no way intitled them to this complaint, have, notwithstanding, been afflicted with it, from being a bed-fellow to a gouty husband.

If the gout then is ever hereditary, it is plain the solid parts of the body are those
primarily

Hereditary, and brought on by intemperance and contact.

primarily affected ; for if we look into nature, it is the organization or peculiar form and texture of its parts, that the offspring inherits from its progenitors ; as likeness evinces, and that it is this structure in animals, as well as vegetables, which alters and adapts the juices passing through them to their proper office. Consequently, if the solids are formed in a diseased state, the fluids they carry will degenerate from health ; and it is therefore reasonable to suppose the alteration from nature we observe in the juices thrown off in an hereditary gout, is in consequence of some morbid structure. The same may be said of the gout brought on by intemperance, for diet has the power of changing the whole body ; its very structure, like the structure of vegetables in various soils, is altered, and this disease, in process of time, is the consequence of luxury and convivial meetings. Nor is there any great difference when

A disease
of the
solids.

the

the disease is brought on by the absorption of gouty matter ; for by laying hold of and altering the solids, a gouty diathesis is brought on ; and thus it happens that acquired gouts are equally difficult to remove, with those which are inherent in the constitution.

In those hereditary disorders where we are certain what parts are affected, we always find the affection in the solids. In the scrophula, the glands are the seat of the disease. In another hereditary disease, improperly called by the same name, the membranes are the parts mostly affected ; but the muscular fibres under them, when laid bare by an imperfect suppuration, appear weak, pale, and inactive, and the matter discharged is thin and watery : nor can any alteration be made by the most powerful of those remedies, which are known to promote good matter, and a healthy elongation of the fibres under common weakness and relaxation. When
we

we are fortunate enough to heal these ulcers, the fibres and matter remain in *statu quo*; and a cicatrix is slowly induced by great length of time, fairly evincing that nature cannot be changed, and that she must always be managed in her own way. In these instances we see into the constitution, and it is evident that a diseased state of the solids brings on the disease in the fluids; and if this happens in one instance, why not in another?

Were hereditary diseases to arise from contaminated blood, they could not long be transmitted, because the blood and the juices derived from it are continually changing. For this reason it would be impossible for hereditary diseases to arise again after lying dormant a generation, if they did not originally reside in the solids; but these being the parts affected, an exciting cause may stir up a malady which has not shewn itself, because it has not been aggravated or disturbed. Be-
8 fide,

side, if the disease resided wholly in the blood, it might probably be cured; whereas neither medicines nor diet has hitherto been discovered, sufficient for the purpose; and it is therefore reasonable to suppose it owing to a peculiar kind of structure, that physicians have not been able to cure an hereditary gout, and that the boasting of nostrum mongers has always ended in discredit.

From the nature of those causes which aggravate or bring on this disease, it might be imagined that the gout is an inflammatory diathesis of a particular kind; but though it is frequently attended with inflammation in strong athletic habits, yet in an opposite state of the solids, we see this disorder often very troublesome without any inflammatory symptoms. Whence we may conclude, that preternatural heat is a symptom under particular circumstances. The many nervous symptoms attending it, have induced physicians to suppose

Inflam-
mation in this
disease ow-
ing to par-
ticular cir-
cumstan-
ces.

suppose it an affection of the nerves; and there is no doubt but that the nerves are equally affected with the rest of the body. I believe with Boerhaave *, that in consequence of a diseased state of the nerves, the nervous fluid also becomes diseased; and whether still residing in the nerves, or when thrown off into the extremities, occasions many of the symptoms usual to the gout; because the internal parts are relieved, and the limbs are affected when a metastasis happens.

By nervous fluid, we mean what we discover upon dissecting the brain or nerves; and which a rupture in the tumor accompanying the bifid spine, discovers to be essentially necessary to life †: for we may easily suppose a fluid residing in the nerves, of such high importance to life as it evidently appears to be, to bring on (when both the nerves and itself are dis-

Nervous
fluid,
what.

* Baron V. S. C. sect. 12. 62.

† See Dissertation on the Brain and Nerves.

Transi-
tion of the
gout.

eased) the nervous symptoms we discover before the gouty matter is thrown off into the extremities. But the sudden transitions of the gout from one part of the body to another, has been an objection to this opinion; it being imagined that a watery fluid is incapable of passing through the minute vessels with such velocity as the pain in this disease is known to move: and yet in Mr. Rook's case*, the pains which ascended as quick as lightning from his feet, heels, and ancles, to his stomach, terminated by a discharge of green aqueous liquor! However, I can easily conceive that the pains in the gout move about by consent of parts, without the nervous fluid keeping pace with them; because impressions made upon any part of the brain affects the whole. In Mr. Wilkes's case, the pain in his wrists, shoulders, and knees, instantly vanished when the bal-

* Lond. Med. Inq. vol. i. p. 41.

ſam of Peru came in contact with the nerves of the ſtomach. We have ſeen a gentlewoman inſtantly ſeized with violent ſpaſms in her ſide every time an ulcer, with acute ſenſation on the outſide of her ankle, was gently preſſed with a ſoft linen rag to take up matter; and may not therefore a diſtant gouty pain be inſtantly brought on by a local affection of the nerves, eſpecially as the whole nervous ſyſtem is diſeaſed?

Much inquiry has been made about the nature of the gouty matter by chemical experiment, in hopes of diſcovering an antidote; but to very little purpoſe. All we know of it is from its common effects, by which it appears not to have any great degree of acrimony; otherwiſe it muſt of courſe bring on ſome kind of diſſolution of the parts it often ſo long infeſts. I have ſeen a quantity of it collected under the cuticle, which at firſt appeared to be a clear lymph, afterwards it daily became

Gouty
matter.

more and more opaque, and at last terminated in a chalk-stone, evincing its mildness by not corroding through so slight a covering. Are not these chalk-stones a proof of the grossness of the matter forming them? and does not gouty matter seem to offend more by quantity or grossness than acrimony? My own ideas of this disease are, that, in consequence of a particular state of the solids, the juices acquire a morbid disposition, which in part brings on what are called gouty symptoms; but upon a depuration being made to the extremities by an effort of nature, the body is relieved till a fresh accumulation of gouty matter again disturbs the patient. May it not then be accepted as an incontestible fact, that nervous energy is lessened, and a great degree of morbid irritability brought on by this malady? and that both these effects ought much to be attended to in the cure?

Gouty
symptoms
how
brought
on.

Instead,

Instead, therefore, of looking for medicines to correct gouty matter, it is the business of the physician, if we are to imitate nature, to remove it out of the body by those means different circumstances make most suitable. A common fit of the gout is a natural expulsion or derivation of the gouty matter into the extremities. When it has been flying about the body a considerable time, a looseness will not unfrequently relieve the patient, and sweating has sometimes proved critical. In Mr. Rook's case * we plainly perceive his fits of the gout were carried off by the gouty matter being discharged out of the body. When gouty people have been troubled with violent flatulency, acrid eructations, restless nights, with heaviness of the whole body, &c. I have frequently seen the most desirable effects from calomel, assisted by gentle purges :

Gouty matter to be removed out of the body.

* Lond. Med. Inq, vol. i. p, 41.

and from these premises we may, I think, safely conclude, that the true method of relieving the gout is by supporting nervous energy and evacuating the gouty matter.

By purg-
ing,

Now when nature herself brings on a regular fit of the gout, the unloading the nerves is accomplished; but when she is embarrassed in this work, I have never yet seen, under an inflammatory state, any method equal to purging in giving immediate relief. Dr. Cheyne* says, "I have
" known some eminent physicians have
" so little regard to Sydenham's opinion
" in this matter, that in the fit of the gout
" itself, at whatever time it happened,
" they never scrupled to drive it off, both
" from themselves and others, by strong,
" quick, and active purges; which they
" repeated every morning whilst the fit
" continued, and at night quieted the tu-
" mults they occasioned, and expelled the

* Ess. on the Gout, p. 35.

" gouty

“gouty humours introduced into the ha-
“bit by them, with cordial and warming
“medicines mixed with opiates. This
“method they continued till the pain was
“gone, and the tumor subsided. And to
“prevent its return, carry off all the
“remaining goutish humours, and to
“strengthen the habit, they pursued gen-
“tle stomach purges, aromatic diluters
“and warm alteratives, till a strong con-
“stitution was obtained : *and most certain*
“*it is, this method will cure any fit of the*
“*gout, how obstinate soever, and that in a*
“*few days.*” And if purging could so
soon and effectually carry off a fixed gout,
there is every reason to expect the most
salutary effects where the disease is not de-
termined to one point. Indeed, this is
the only instance in which I have tried it,
except when the gouty matter has seized
upon the head, stomach, or bowels ; and
under these circumstances proper purges
give the most immediate relief.

Sydenham seems to have thought that the gout could terminate no other way properly but by falling upon the extremities; his practice was directed accordingly, and I am very apprehensive his doctrine about purging in this complaint, has since his days been carried farther than common sense could support it: for wherever the gouty matter could not be brought into the extremities, cordials and costiveness would only support the patient's spirits in a long protracted disease. If nature points out a disposition to fix the gout in the extremities, she should undoubtedly be assisted, if she wants assistance; or in retrocedent or misplaced gout, we may with great propriety endeavour to bring it into the extremities by the remedies commonly used on this occasion; but it will not always happen that either irritation or warm bathing, &c. will accomplish our designs: and if we fail in our intention, it will certainly, in cases of exigency,

exigency, be right to attempt a mitigation of the symptoms by purging; as we can always make a discharge of lymph from the bowels with more certainty than we can make any other evacuation. Nor is it uncommon for a metastasis of matter to follow the use of purges, which always tend to render the whole state of the vessels pervious.

This evacuation in gouty people must, however, be managed with more caution than is required in most other diseases, when they are necessary; on account of that deficiency in the power of the nerves, so manifest in this complaint. For this reason, except where the symptoms of inflammation forbid, we must support nervous energy at the time evacuation is made; by choosing those purges which warm and invigorate the nerves: nor must a greater evacuation ever be encouraged than the patient's strength will very well permit; remembering that

Purges to be managed with caution.

draftic purges may do injury by enervating, though thofe which act moderately give relief. I can fafely aver I have feveral times feen, when inflammatory fymptoms have come on with remarkable affection of the head, breaft, and abdomen, the patient moft effectually relieved by purging and faline medicines. Indeed, it appears to me that under an inflammatory ftate, purging is the moft expeditious and certain way of removing the gout from the head, lungs, &c. for if it could be removed from the foot, for inftance, in a fhort time by this procefs, why not from any other part of the body? And while a ftimulus is kept up by inflammation, purges I believe cannot have any bad effect. On the contrary, where there is great debility without inflammation, blifters, finapifms, and fmall dofes of James's powder in the cordial confection, are the remedies on which we are chiefly to depend in removing a vague or misplaced gout,

But

But even where the nerves of the viscera are rendered torpid, and almost insensible to the effects of ardent spirits, and warm active cordials are necessary to give warmth, and enable them to exert themselves in this oppressed state; yet gentle purging is also highly useful: for though the symptoms arising from a deficiency of nervous energy may be relieved by stimulating cordials, yet I always observe the work is but partly done till some evacuation is made from the stomach and bowels. It is in this instance that purges, which warm and invigorate the nerves, are so very serviceable. If we reflect, there is not any thing more common than pain, spasm, and oppression to affect the stomach and bowels, notwithstanding a coldness in them has been taken away by remedies possessing heat; but upon proper doses of *hiera picra* being given, the offending matter has been carried away in a few loose stools, and ease and spirits given

Gout not
always re-
lieved by
evacua-
tions.

given to the patient. In the same manner opening clysters, with *assa foetida* in them, do good service in a gouty colic, by occasioning a discharge of gouty matter, and warming the nerves, and giving spirits at the same time. However, we by no means think the gout is always to be relieved by evacuation, or that evacuations are not sometimes improper; because gouty matter does not seem always to assist in occasioning gouty symptoms, but the gout itself often brings them on by affecting the nerves; and in enfeebled subjects, medicines which give vigour to the nerves are those chiefly to be relied on. Accordingly we find generous warm cordials, volatile salts, foetid gums, warm stomachics, steel, &c. afford the most certain relief under these circumstances.

Bleeding.

Bleeding is another evacuation recommended in this disease; and when a considerable fever comes on in strong plethoric habits with a full pulse, oppression in
any

any part of the viscera, &c. blood may be taken away as the case may require. And I can bear testimony to the truth of what those writers have said, who assert that bleeding under these circumstances often occasions a metastasis of gouty matter to the extremities; but it must be remembered, that though bleeding lessens plethora, it enervates. Sydenham says it does mischief; and as it cannot possibly do the patient service otherwise than by unloading the vessels, I am led to conclude it should be taken away with caution by a small quantity at a time, and by repeating the operation if absolutely necessary.

But there is an intermediate state frequently happening to gouty persons, in which there is neither great heat nor great coldness, and yet the patient is feverish, and feels both these symptoms, in some degree or other; and the gout shews itself by pain in most parts of the body without fixing in any one of them.

Treat-
ment of
interme-
diate state.

In

In this instance the bowels should first be opened; because gouty symptoms in different parts of the body arise by consent of parts, from an affection of the stomach and bowels, and then medicines composed of cordials and cooling remedies do eminent service. I have repeatedly seen a mixture composed of regenerated tartar, cordial confection, pepper-mint, and nutmeg-water, produce effects that have surpris'd me, by warming the nerves, and making an evacuation either by urine, or by bringing on a gentle uniform sweat, which should be continued as long as the symptoms require, if it be discovered that they give way to this treatment. Sydenham, to whose authority I pay great respect, condemns sweating in this disease; but so far as my observations direct me, I am led to believe it is only profuse evacuations which do harm.

Opium.

Opium has been decried in this disease by physicians of the first eminence, except

cept in vomiting and looseness; and perhaps uncombined with other remedies, its sedative quality may have done injury, where the complaint had brought on great nervous oppression. Sydenham, whose practice was guided by experience, did not reject the use of Venice treacle, and he depended upon laudanum when the striking in of the gouty matter threatened death. His pupil, Dr. Dover, gave two drachms of Venice treacle for a dose, when the gout was in the stomach; he depended much upon his sweating powder in relieving the patient of pain and other symptoms; and daily experience fully evinces the safety and advantage of opium in this complaint, when joined with warm and penetrating ingredients: for these, by supporting the energy of the nerves, prevent its having any bad effect. Of this Dr. Cheyne * seems to have been aware;

* On the Gout, p. 28.

and

and yet it may be hard to say from his directions whether opium ought to be given or not ; for in one part of the same paragraph he says, " it is the safest side " not to administer *any kind* of opiates in " the fits, because they constantly pall the " appetite, and leave a nauseating, and " perhaps a reaching on the stomach, the " readiest way to bring the gout there." And in another, " that by joining spicey " nervous and stomachic medicines with " them, they procure rest, ease from pain, " and answer all the other intentions in " the cure of a fit of the gout."

Stimulating ingredients to be joined with it.

In imitation of this practice, I commonly join with opium such warm and stimulating ingredients as the presence or absence of inflammation directs ; where pain or spasms require its use. Nor do I know any state in the gout which forbids the use of opium, except when the nerves of the stomach are become torpid. The practice of giving it after purging, has been

been proved to be right by experience. When after an expulsion of the gouty matter, the whole body becomes so very irritable, that violent spasms affect every part of it upon motion; opium, joined with warm spices or camphor, cannot be dispensed with: and in gouty coughs the elixir paregoricum, joined with a decoction of myrrh and camphor julep, will relieve the patient. But I would wish opium to be disused as soon as the spasms will permit; and recourse be had to those remedies which remove morbid irritability by invigorating the nerves; because in those people who have taken it constantly for several years by way of prevention, I have always remarked a fallow complexion and a deplorable debility to be the consequence. I have observed the most desirable effects from the use of opium and sudorifics, in mitigating the pain accompanying a gouty looseness; yet I always think it prudent to premise a dose

G g of

of rhubarb with a drop of oil of cinnamon. Nor should any attempt be made to stop the vomiting, without first clearing the stomach by a gentle vomit or a stomach purge; and then the bitter tincture and a little regenerated tartar in chamomile tea, will probably alone be sufficient, for the purpose: though I have seen a very different treatment remove this symptom, when this remedy and the usual methods proved ineffectual.

Fixed air.

A gentleman about fifty-six years of age, of strong fibres, and naturally a good constitution, had been subject to an hereditary gout from his youth; and he latterly underwent long and very severe fits of this disorder: but instead of the gout being thrown to the extremities as usual, he was seized with a most violent vomiting, which returned several times a day, in opposition to every method myself and another physician could prescribe. Being tired of the liquors he commonly used,

used, he had recourse to some very thin *sour mead*, which removed the sickness, and stopped his vomiting. Upon tasting it, and giving my opinion that it would occasion the colic in most men, it was laid aside, and the vomiting returned. He had recourse to it again with former success, and told me he was convinced, from his own feelings, that mead had some power of nourishing the stomach, with which the medical gentlemen were unacquainted. But the cause of its giving relief did not long remain a secret; for upon pouring some of it into a glass, I saw it was very full of fixed air. Wherefore supposing by its sedative property it lessened the irritability of the nerves in the stomach, I advised him to pursue his remedy; and by drinking a glass three or four times a day, or when sick, he was immediately relieved. His stock of liquor, however, consisting of two bottles only, being soon exhausted, his vomiting

returned; but upon ordering him draughts of salt of wormwood, cordial confection, and mint-water, to be taken in a state of fermentation with lime juice, of which he had plenty by him, he was cured of this troublesome symptom, which had probably discharged the gouty matter, as he escaped a fit at this time. I have since seen equal advantage from this method in similar instances; and it was probably under the same circumstances that cyder and perry were given with success for the gout in the stomach.

Gout in
the extre-
mities.

When nature, instead of being embarrassed, relieves herself by expelling the gouty matter to the extremities, or what I believe is more common, when it swells and inflames these parts, from being incapable of passing through the ligaments, we are to consider the disease in a different point of view; and it is the business of the assistant to prevent its retrocession. But the question is, whether we should attempt

attempt to accomplish this point by pursuing the common practice of keeping the bowels open, occasionally supporting nervous energy, and leaving the patient to torture, flannel, and patience; or whether we should give him ease by promoting a discharge of the gouty matter from the affected part?

Dr. Sydenham says, "pain in this disease is nature's remedy, and the more violent it proves, the sooner the fit terminates; the intermissions are longer, and more perfect, and *vice versa*."

Wherefore physicians have since laid it down as a rule in practice, that the pain ought not to be mitigated by external remedies of any kind whatsoever; which reasoning cannot, I think, be supported by the observation Sydenham made, because the pain, speedy termination of the fit, and the length of the intervals betwixt the fits, were clearly owing to the vigour with which the matter was expelled. Nor

could pain, which is manifestly a consequence of distension, excite a greater flux of gouty matter; because we have seen it neither occasions inflammation nor a flux of humours to the part it affects; and we verily believe it to be no way salutary in this disorder, but a symptom troublesome and injurious to the patient. Nor can there be any doubt but it ought to be mitigated, to prevent its disturbing the animal œconomy; and in every instance I have met with, whether in books or in practice, where pain has been properly removed, the patient has received ease with safety.

Whether
topics
should be
applied.

Pain, however, is not the on'y inconvenience which should induce us to promote an exudation of the gouty matter; for by lodging in the part affected, most of it is absorbed back into the habit, is a fresh *fomes morbi*, and occasions a quicker return of the disease. Accordingly, in the first fits of the gout, while the vessels are
pervious

pervious and active, the part sweats, and the paroxysms have long intervals; but as the vessels and fibres are weakened and obstructed by frequent repetitions of the complaint, the offending matter does not escape outwardly, and the fits are more frequent: and from what we have observed about the gout being received by contact, I think an absorption of gouty matter ought, if possible, to be prevented.

But though pain does not occasion a termination of the gout to the part it affects, it may be asked, whether gouty matter, by irritating, does not produce this effect, and whether removing it by exudation may not therefore do injury? To which we answer, it can only do injury by misapplication. It is only where the inflammation is great, that we think topics necessary. In cases where nature is remiss, and irritation is required to invite the gout downwards, the irritating

cause may be suffered to remain undisturbed till the disease is invited or expelled into the extremities; and it may then in every instance be safely discharged: for it is certain, by the manner in which the first fits of the gout terminate, that the office of nature does not end in throwing the gouty matter into the extremities, but in discharging it entirely from the body. Gouty matter stagnating in the extremities, seems to depend upon accidental circumstances; and in promoting its exit, we only finish the work which nature has begun.

There is still a more weighty charge against the use of external applications, for it is said they often occasion a retrocession of the gout; but this we apprehend is owing to the composition and nature of the remedies employed: for though emollient cataplasms, warm bathing, camphor, aromatic oils, and anodyne spirituous applications, have the property
of

of giving ease, either by relaxing or taking off the sensibility of the part; yet they have no property in themselves of promoting a discharge; and the matter being set at liberty, is either discharged outwardly, or retrocedes, according to its situation. Even blisters increase the inflammation for a while, and may in the first instance thus occasion a return of the gouty matter, by setting it at liberty, and not suffering it to escape.

Compositions for promoting a discharge of gouty matter, must be so managed as to be capable of softening the inflamed parts without over-relaxing them; for either tension or over-relaxation will prevent exudation. They must have an attenuating and stimulating property, to invite the humours outwards, and yet be incapable of inflaming; and in this intention the state of inflammation must direct us, as is already observed. If the inflammation is great, a neutralised soft plaister, that
does

does not adhere, will answer the purpose. If the parts are less tense, and require a warmer stimulus, a volatile plaister will be preferable; but along with these applications, inward medicines must be given, suited to the state of the patient, to promote an outward discharge; and when the gout is ripe enough for the purpose, i. e. when the metastasis seems to be about complete, these methods can scarcely fail evacuating the obstructed fluids, and giving ease to the patient: but if pain in the inflamed part requires it, opium, joined to other proper remedies, may be occasionally given, till it is proper to lay the flannel aside.

Bark and
steel.

Sydenham recommended the Peruvian bark, and Cheyne, bark and steel, as most effectual medicines in strengthening and enlivening the blood and fibres, and in promoting digestion in the intervals of the fits of the gout; and in enervated subjects I join them in opinion. But in
habits

habits of hot temperament, and subject to inflammation, fever and other inflammatory symptoms are not an uncommon consequence of their use, unless given in very small doses. For this purpose an infusion of bark in cold water, seems to be the most proper form, entirely omitting the steel; for though this medicine may sometimes bring on a regular fit of the gout, yet in the state last described, even in Bath water, it is most likely to be pernicious, and should not be used.

Should a fever supervene from an improper or untimely use of the bark or steel, it may commonly be subdued by gentle purging and saline medicines; but when the gout is fairly gone off, I see no occasion for the practice Dr. Mead * advises, of purging, to carry off the morbid humour which causes the swelling. On the contrary, I am fully persuaded of the

* *Monita & Med. Præcept. cap. 12.*

truth of what Sydenham asserts, that it will often (by irritating the whole body) occasion a return of the complaint. Nor is purging at all useful or necessary in the itching which frequently follows old gouts; because the matter producing it lodges upon the skin, is out of the reach of purges, and may be readily removed, and the disease cured by the warm bath, or rubbing the body for some days well with sponge soaked in warm water. Rendering the whole state of the vessels pervious, and opening the pores, seems to be the best method of removing the remains of the disease, and preventing a fresh accumulation of gouty matter, because this may be accomplished without occasioning much disturbance; and perhaps mercury, sulphur, and Bath waters, where a hot temperament did not forbid their use, have gained credit by producing these effects.

Bath waters.

Issues

Issues.

Issues have also been said to be serviceable in this disease, but I never could discover that they prevented it: I have suffered chalk-stones, accompanied with an ulcer, to remain in the feet of old people; and as every discharge from the affected part must be beneficial in a fit of the gout, the practice seems to be advisable*; but I perfectly agree with those who depend upon a temperate regular regimen as the only prophylactic. This avoids an exciting cause; and experience has abundantly shewn, that, when properly pursued, it often keeps this disease from giving much disturbance; but no sooner does irregularity take place, than we are convinced the *sedes morbi* is still existing, and that a radical cure of the gout is not to be obtained.

Directions concerning exercise and diet in the gout, have been so fully given by

† See Mr. Rook's case, Med. Inq. vol. i. p. 48. 49.

writers,

writers, that very little can be added, except we protest against the opinion of those who assert that the patient may always pass immediately from one extreme to the other, in his way of living, with advantage and safety. Perhaps they may instance the young and vigorous in their favour, whose strength will admit almost all kind of changes in diet with very little inconvenience; but in people long accustomed to any particular method of living, it becomes habitual, and cannot hastily be changed without danger. This is very evident in the cure of wounds. I took off a farmer's hand about forty years of age, and ordered him a low diet during the subsequent inflammation. Instead of the lips of the wound swelling, or the wound itself digesting at the usual time, it discharged a gleet, became ragged, pale, glossy, and flaccid; and the stump began to acquire a conical form, from the fibres retracting backward. Upon inquiry,

quity, I found this man had usually, for many years together, allowed himself two gallons of ale a day; and I immediately concluded the want of natural vigour, so evident in the complexion of the wound, was owing to the restraint he now lay under. Accordingly I advised him to have recourse again to his favourite liquor, and to steer in the middle way betwixt the two extremes. He willingly obeyed my injunction; and liveliness in the fibres, and a discharge of mild good matter, soon evinced the rectitude of our proceedings. I took a scirrhus out of an elderly gentlewoman's breast, gave the usual directions, and at the first dressing no wound ever looked better; but in two or three days it began to gape, look glossy, and discharge an ichor, which induced me to suspect that she had lived freely; but my inquiries only brought out that she had now and then drank a dram. Upon this, I ordered her a glass of brandy or two in the

the day, and the wound next morning looked a little more vigorous; but it soon degenerated, in a few days more became enormously wide and inactive, and death soon finished the scene. I was informed afterward, by her nurse, that she had for many years made it a constant rule to drink a gallon of brandy a week. I was convinced that we lost our patient for want of her common support, and that even bad habits cannot with safety be suddenly altered. Medical history abounds with instances of the same sort; and are not therefore sudden alterations in gouty habits most likely to be attended with ill consequences, especially as nervous energy is already impaired?

Gout in
old people.

We have already spoken of the state of the gout, which happens in old people who have been subject to this disease, where the constitution being worn out, it harrasses the patient without any signs of a crisis; and the only relief he obtains is
from

from those remedies which strengthen the stomach and invigorate the nerves: but there is also another kind of gout in old people which is no way serviceable. It generally comes on towards seventy years of age in those who have never been troubled with it before, and without indisposition at the time. No violent degree of pain attends; though in other respects the foot and leg swell, and have a perfect gouty appearance, which goes off upon the use of flannel, and living according to the rules of common-sense.

Reflecting on these appearances, I have been led to suppose that at this time of life, the juices may have acquired a disposition which renders them incapable of passing through ligaments and tendons injured by old age; and stagnation occasions the swelling described. Perhaps what is called a regular fit of the gout may always happen in this manner. The lymph being loaded with that kind of

H h

matter

matter productive of chalk stones, is incapable of passing through compact ligaments; of course it stagnates in them, and by stimulating determines gouty matter from the whole body to this part, and thus relieves the patient. This doctrine deserves a fair inquiry; because, if it be true, what has hitherto been called an effort of nature, will appear to be nothing more than an accidental obstruction (owing in part to structure) in the ligaments about the joints, especially in the extremities, from their being depending parts; and that nature herself having no choice in this business, the gouty matter may be discharged from the habit with equal advantage by various ways. When external stimuli, like gouty matter, can be made to invite this disease into the extremities, they do good service; but when it happens to seize upon the viscera, or does not settle in any particular part, the propriety of removing it immediately out
of

of the body by the methods recommended, will be obvious. Not can I join those in opinion who suppose there is no such thing as gouty matter; because I have seen it: and I cannot think chalk-stones could be formed, unless from juices of a particular kind. All which sentiments I wish to be looked upon as an appendix only to what has already been written upon the subject, my plan leading me to consider how far discussion ought to be pursued in the cure of this disorder.

C H A P. XI.

INFLAMMATORY OEDEMA.

OEDEMATATA, which come on suddenly, are sometimes accompanied with an erysipelas, or more commonly a simple inflammation of the skin; which occasions our placing this otherwise indolent, cold, doughy tumor, in the inflammatory class, requiring discussion, in conformity with nature, who always terminates it in this manner, unless interrupted by some outward cause.

An oedema is always local, and it often happens that one leg, for instance, after some indisposition, shall suddenly be seized with this complaint: I have repeatedly known a warm clyster given to relieve a pain in the bowels, especially in women in child bed, with the desired effect; and an oedema, attended with some degree of inflammation, in which the skin both in the leg and thigh being distended to an enormous size, in a few hours,

hours, was the consequence; and every instance I have seen, became as perfectly local as an abscess after a deposit of matter.

From this account it may appear, that the swelling is owing to a metastasis of inactive matter from the blood and other juices; and yet there is reason to believe that the symptoms, sometimes at least, arise from nervous affection; and the sudden accumulation of lymph to be owing to a want of power in the absorbent vessels to do their office: because in the cases alluded to, with pain in the abdomen, there did not appear any distension or signs of accumulated lymph in this cavity, sufficient to account for the tumor in the leg and thigh, which appeared upon the pain being removed. We know the compression of a large bundle of nerves will occasion an oedema; and may we not suppose that the cause of pain was translated from one part of the nervous system to

another; and thus by rendering the nerves incapable of doing their office properly, occasioned the disease in question?

Are not these conjectures supported by the method of cure? For these tumors are suddenly dispersed, without inconvenience to the patient by this process; being never, that I know of, prevented from readily recovering a good state of health, which surely could not happen if the swelling arose from morbid lymph: whereas, if we can suppose it to be an accumulation of lymph only from nervous affection, it is easy to see how it may pass into the vessels of the body without doing injury.

The only danger in treating this complaint is in mistaking it for an anasarca, brought on by some other disease; with which, from the days of Galen †, it has

† De Arte Curan, ad Glauc. lib. ii, cap. 3.

been

been constantly confused : whereas we shall shew, in speaking of the cold oedema, that it is a distinct disease, and always confined to one place or member. For if the lungs are clear, and no signs of fulness or ailment appear, except in the affected part, we cannot well be mistaken ; and it will not be necessary to hesitate about the method of cure.

In an oedema, which comes on suddenly, and is of short duration, the fluids in the cellular membrane have not had time to become viscid ; they are therefore very easily set at liberty, and the inflammation disappears as the distension, which gave it birth, subsides. I have constantly, in this instance, applied, with the most desirable success, a cerate composed of the brown plaister made of red lead, bees-wax, and oil, of such a consistence as to lie soft and easy, without relaxing too much : but bandage must be used as

soon as the swelling begins to subside, and be gradually increased as circumstances permit; for it is impossible to expect perfect relief without attending to the proper application of this remedy. The patient should be gently purged at the same time, at proper intervals, with small doses of calomel, rhubarb, senna, and soluble tartar. Diuretics or sudorifics may be given, with a view of hastening the cure; and the bark will generally be necessary before it is complete. At first, regenerated tartar may be joined with it, as by this means it becomes the most powerful deobstruent and diuretic I know; but when evacuations are no longer necessary, the bark may be given by itself with proper advantage.

CHAP,

C H A P. XII.

ON THE OPHTHALMIA.

THIS inflammation (which not unfrequently rises so high as to form the red swelling of the *tunica adnata*, is called by the Greeks *chemosis*), having, its seat in the membranes, terminates either by dispersion or a dissolution of the parts affected; occasioning a confusion in the humours of the eye (*synchysis*) by leaving the cornea opaque, or corroded; or in a redness and weakness, without either heat or pain. Of course dispersion is the method of cure; in which opinion the whole faculty agree, and that it should be accomplished as soon as possible, to prevent the consequences above mentioned. For this purpose it was usual first to enquire whether extraneous bodies are not the cause of the complaint; because in such case a cure cannot be expected till they are removed. The hair upon the edges of the eye-lids turning inwards (*trichiasis*)

Ophthalmia, its seat and effects.

To be removed as soon as possible.

Necessary enquiries for this purpose,

And how
to remedy
some cases
of oph-
thalmia.

(*trichiasis*) are of this number; and the remedy is by an operation * described in chirurgical books. Small pustules in the cornea must be opened, by taking off the head of the tumor, and the ulcers kept clean by washing with some emollient lotion till they heal. Washing also may alone remove the irritating cause in epidemic ophthalmia, which generally disappear when the state of air changes; but the tedious inflammation of the eyes, which arises in children from cutting the large teeth, can only be mitigated, till they make their way out, or till they are let out by a lancet: and then it gradually disappears by the common remedies. Paulus † in the dry ophthalmia, (*xerophthalmia*) prescribes those remedies which soften and promote a discharge; but later writers ‡, on the contrary, use drying

* See Ware on the Ophthalmia.

† Cap. 23, lib. iii.

‡ St. Yves, chap. v. art. 1.

collyria

collyria with powdered tutty, &c. and thus render this distinction * no ways beneficial in practice.

When the eye-lids have been troubled with a slight soreness; scabs, and itching, (*psorophthalmia*) I have known the common method of applying the *linimentum e lapide calaminari, unguentum tutiæ*, or white vitriol dissolved in water, successful; though a more speedy method is rubbing them gently once or twice a day with the finger just wet with Hungary water, or spirit of wine; which dry, and where there is little or no preternatural heat, immediately more or less destroy sensibility, and relieve the patient. When small ulcers accompany this complaint, I treat them as I would do other ulcers, by keeping them clean, digesting, and then healing them; for which purposes they may be washed every morning with

* The different distinctions in this disease are seen at one view in Cullen's Synopsis.

warm milk, and a small portion of honey of roses, by the help of a probe armed with lint: betwixt whiles, a very mild soft digestive, spread upon a few threads of lint, may be applied; and when the sores seem inclined to heal, the epulotic cerate (made as directed) will finish the cure, unless the parts about the little ulcers are relaxed, and then more drying or astringent remedies will be necessary. Mr. Ware*, indeed, proposes a more compendious method; and though it does not appear by what means it gives relief, the facts adduced are satisfactory, and will highly please those who have sense enough to be satisfied with facts. Bruises of the eye are to be treated like other external bruises, by bleeding, purging, and outward applications: I commonly apply a neutralized ointment or poultice. The lymph which drains into the eye is the most powerful dissolver of coagulated

Bruises of
the eye.

* Loc. cit.

blood;

blood; but if blood mixes with the aqueous humour, and cannot be absorbed, the necessity and safety of opening the cornea obliquely is known to every one; and if weakness requires any farther assistance, it will hereafter appear. I perfectly agree in opinion with those who disapprove of powders of any kind in lotions for the eyes. It was probably owing to their effects that an eminent writer * said, those fared worst where they had been most used. These things being premised, we will treat first of a single inflammation of this part, from its being naturally weak and irritable, from taking cold, from extraneous bodies, or from other accidental causes, attended with a greater or less flux as circumstances happen: after observing, that if we take a view of the writers on this subject even to this day, one might be led, from some of them, to imagine that

Powders
improper
in sore
eyes.

* Wiseman.

an ophthalmy requires a different kind of treatment from other inflammations ; otherwise some curious chemical devices for this purpose could not so lately have been introduced among us. An air of empiricism has in general appeared in the treatment of this complaint, owing to the manner in which the intentions of the ancients, who wished to mitigate irritation, and repel the flux of humours, were carried into execution. Hippocrates says, “ pains in the eyes are cured by “ drinking pure wine, or by the bath, or “ by fomenting, or by bleeding, or by “ purging :” but, as Celsus observes, “ without explaining the proper times for “ these, and the reasons for their use, *in “ which the principal part of medicine con- “ sists.*” In other places he speaks of the *inspissated* juice of plants *, &c. which he used in inflamed eyes ; but it is from

* See Marinellus's Commentary, who has collected all he says about the eyes together.

Galen † that all the remedies which have since been in vogue took their rise. What he collected from various authors was copied by the Greeks, and dispersed into every quarter where their writings were read; and these in one shape or other have descended to our days. It must be confessed, however, that Galen knew how and when to apply the remedies he recommends. Along with suitable evacuations he used mild fomentations, joined with moderate repellents in the first stage. To these, detergents of the absorbent kind were added, when ulcers or fordes made them necessary. Afterwards ‡, where the flux upon the eye was great, even coblers ink, with honey, were applied to the eye-brows and forehead to restrain it. Celsus ||, who depended much upon rest and abstinence, recommends a kind of

† De Comp. Med. Secund. loc. lib. iv.

‡ Paulus, lib. iii. cap. 2.

|| Lib. vi. cap. 6.

defensative to compress the veins, and prevent the flux. He applied cooling lenients on the first days. When the pain is great, he advises anodynes, clysters, and bleeding; but afterwards, lenient and gentle repelling medicines united, are to take place. Of this sort he has copied a variety of collyria from different practitioners, each preferring his own remedy to that of his neighbour; though all of them were nothing more than copies of the originals from whence they were taken. Has not the same practice been all along continued? and has it not given rise to nostrum-mongers and quacks boasting of their specifics in the cure of this disease? Yet it is most certain, that, like all other inflammations, it gives way to those remedies *which remove the irritating cause, and lessen the sensibility of the part*; for which purpose different applications, according to circumstances, are necessary.

How
cured.

Wifeman

Wiseman properly advises us to consider whether the disease be in its beginning state, or declension; and to proportion the medicaments accordingly; for let the empirics boast of this or that universal collyrium; they cannot cure ophthalmia with one particular remedy. It is certainly true, that in the beginning of inflammation, cooling sedatives are proper; when of considerable continuance, resolvents should sometimes be joined with them; and in the declension, strengtheners will often be necessary. Nevertheless, the applications spoken of in the latter end of the first chapter, will very often preclude the necessity of other treatment, if persisted in with due regularity, and occasionally assisted by bleeding, purging, and cooling diuretics. I commonly give calomel and the purging salts three or four times, at proper distances; diuretic salt betwixt whiles in any proper vehicle, and the bowels are afterwards opened two or three times a day with

Treatment in the first stage.

small doses of Glauber's salt dissolved in water, or the regenerated tartar in the infusion of senna; as in other inflammations. For I have ever found, under proper restrictions, according to the aphorism of Hippocrates, that *those affected with an inflammation in the eyes, are relieved by purging.* An antiphlogistic diet should assist this process; and be it remembered, that when the vessels are unloaded, and the inflammation has a tendency to subside, brisk purges do injury, in the manner we have already mentioned, and shall hereafter shew, in speaking of ulcers.

It must be confessed, however, that it sometimes happens that the cream of lead, where the parts about the eye are much swelled, does not answer the end proposed, owing probably to the obstruction it is incapable of removing; but upon the fluid being set at liberty by a neutralized ointment, or a fomentation composed of the heads of poppies, marshmallows,

mallows, and a small portion of regenerated tartar, or crude sal ammoniac and water, applied warm, it generally becomes effectual. Linen cloths, four doubles, wet in it, and removed twice a day, lie easy and moist upon the part, without over-relaxing, and seldom fail, where an irritating cause does not interfere, in reducing the preternatural sensibility and its consequences. I find one drop of laudanum put into the eye once or twice a day, with due perseverance, sufficiently answers our intention, where it can possibly do service, without occasioning pain. It may be used in this manner with advantage, where the sensibility in the beginning is often exquisite, and where few other remedies can be applied without giving offence. Mr. Ware *, who first introduced this remedy to the public in

* Remarks on the Ophthalmia, &c. 1780, London, to which useful book the faculty are much indebted. Home (*Principia Medicina*) has given a concise view of the general doctrine on this subject.

the present instance, applied the thebaic tincture in larger quantity, and, beside the usual evacuations, added sometimes the assistance of bleeding at the temples, with leeches; and immediately afterwards the application of a small blister to the part. But the cases * he has published, and my own experience, persuade me he would have had equal success if he had confided more in his own remedy. I must confess I am no friend either to the application of leeches or blisters near to the affected part in this instance; because I have several times seen them do mischief. Leeches mostly, if not always, leave an inflammation behind; a greater degree of irritability in the neighbouring parts, even to the eye, ensues, and of course weakness must be a consequence. The same may be said of blisters, which inflame to a considerable distance; and I am certain I have too often seen the inflammation in the eye increased by their

* See the first case.

use. Beside, if we are not mistaken in the laws of the circulation, local bleeding (except in particular cases foreign to the matter in question) can only afford a temporary relief. I have several times bled in the eye, by dividing the inflamed vessels, without the least good effect; and, as the blood does not irritate*, may we not in this work be pursuing a useless plan? I have never opened the temporal artery on this occasion, because I never saw occasion for such an expedient; having always found that bleeding at the arm, as the symptoms might require, could do all that I wanted from a loss of blood: and it may be questioned much, whether dividing that branch of the temporal artery which goes toward the eye, cuts off the source of blood to the inflamed part, because of the anastomizing vessels.

Before I was acquainted with the cream of lead, I applied double cloths, wet in

* See Treatise of Inflamm. p. 236 to p. 240.

cold water, as often as they had a tendency to become dry, which mostly answered an exceeding good end in abating heat, in reducing swelling, and in lessening or taking away pain : and where cold water happened to be offensive, its being a little warmed removed this inconvenience. Nor have I laid this simple remedy aside, but still continue to use it occasionally, where the heat is great ; knowing the eminent service it will generally afford. Caustics behind the ears, as Wiseman used them, seem very capable of making a derivation from, without injuring the inflamed part ; but where a flux of humours makes it necessary, a seton in the neck has always answered my purpose. When the eye-lids have been much swelled, I have repeatedly seen it produce the most desirable effects ; and have hence been led to think, that no other kind of external derivation, except issues, is necessary. When the eye-lids are swelled so as to confine the lymph which
is

is secreted in large quantity, they should be pressed open now and then to give it issue, and prevent its becoming acrid; and, indeed, in every instance it should have a free discharge. A bread poultice, with the sugar or vinegar of lead in it, may be applied, and the eye, if possible, washed with warm milk. But as soon as the tumor subsides, it should be changed for the remedies before mentioned; because emollients, though necessary in great tension, are too relaxing, if long continued, and protract the disease: which ends our account of the first stage of a simple inflammation of the eye, where lessening irritability, and removing *extranea* or acrid matter, are the intentions of cure.

But it sometimes happens, as in other inflammations, where the disorder has been of long continuance, that obstruction takes place; and that, though it may in part be subdued, yet it remains incurable till the obstruction is removed.

Second
stage.

It was under these circumstances that Glauber's salt was applied to the young woman's eyes mentioned in the 99th page of my Treatise on Child-bed Fevers. I have since successfully introduced it into common practice, where it seems necessary to remove obstruction to promote a cure ; and I have heard of others who have afforded their patients relief by this method : but I use laudanum and cream of lead, or cold water, an hour or two after it is dissolved, and has created a running, in hopes of keeping the irritation within due bounds. I have frequently used a soft liniment, composed of the *unguentum e lapide calaminari*, (Cheselden) camphor, and socotorine aloes, for this purpose, putting a little bit of it into the eye every night with a hair pencil, and mostly with good success : but I think it gives more pain than the other method ; and I have on this account given preference to that which is mildest. Camphor has long been a prin-

principal ingredient in ophthalmic collyria, ointments, &c. and its good effects are, without doubt, owing to its sedative property; but it must be remembered, that it is one of those remedies which lessen irritability by increasing warmth, and invigorating the nerves; and therefore seems most proper where nervous energy is weakened, and the heat not great. This is the case probably in which electricity has done service, if it be true* that it has sometimes cured an ophthalmia. The electric aura, as we have already observed, certainly increases the circulation in the capillary tubes of animals, and it does the same in vegetables. There are facts sufficient upon record, I think, to prove that it is the cause of the motion of the fluids in both of them; but whether it is capable of removing obstruction in the present instance, I cannot say from my own experience, not having had any occasion for its use.

* The doubt is, the part that nature might act in the cure.

Third
stage.

In the third stage, weakness is the affection we have to contend with; and for this purpose astringent and strengthening remedies are proper. I knew a gentleman whose eyes had long been sore, somewhat inflamed, and so exceeding weak, that he could not bear the light. He tried various remedies during a length of time without advantage; but was at last soon and perfectly cured by the common application, composed of alum and the white of an egg. There is an inconvenience, however, in this application, from its becoming dry and sticking to the eyelids. On which account I have made the alum curd into a poultice with conserve of roses *, and have seen it produce good effects. A lotion of alum and water has the appearance of being equally powerful with the decoction of galls, &c. This is the time to use the collyria of

* The sugar in the conserve may seem to interfere with the main intention, but gentle stimulants, joined with astringents, perhaps are sometimes useful.

camphor,

camphor, white vitriol, and water; the *aqua aluminosa*, or *camphorata*, filtered, of Bates, Sir Hans Sloane's liniment, and such like compositions: but, after all, I question much whether any of them deserve preference to cold water, which has often afforded me great pleasure in the recovery of patients in this situation, when used in the manner already directed. If a succeeding warmth ensues, it does service; if the parts remain cold, brandy must be added, or it will not have a good effect. But in the use of all these things, much depends upon the assistant knowing the power and effects of his remedies, and when to use them; otherwise he will want readiness, and often be disappointed in seeking after variety: whereas when observation has taught him how far, and under what circumstances, they may be depended upon, he will proceed with resolution, and thus accomplish the end in view.

I have

Films and
excref-
cences.

I have seen superficial films and excref-
cences from the cornea, which sometimes
remain after the inflammation is gone
mostly off, removed by the deterfive lini-
ment mentioned in the second stage; by
the *aqua sapphirina*, glass finely levigated,
and by honey, which perhaps deserves
preference to all of them. It has been
noted for a gentle corrosive or detergent
ever since the days of Celsus; and it will
be found, not only in this instance, but in
fores, to answer these intentions often in a
desirable manner; and where it is not
powerful enough, it may readily be made
stronger by adding aloes or other deter-
gents. But whenever deterfives, uncon-
nected with a sedative, are employed, a
drop of laudanum should occasionally be
made use of with the same intentions as
we give laudanum after a purge. In-
stead of these, some prefer a lotion com-
posed of one grain of sublimate, and four
ounces of water; but I have never used
it,

Lauda-
num to be
used with
detergents

it, nor do I think detergents necessary to remove little opaque specks (*albugo*) from this part.

Opaque
specks.

A youth, many years since, had several specks on the cornea in both eyes, in consequence of long continued inflammation, for which the powder of glass was first applied, and afterwards the *aqua sapphirina*; both which, though used with the utmost caution, always renewed the former disease: on which account I disused them, entirely relying on strengthening the eyes with cold water; upon which the opacity disappeared in time. I have since, in a multiplicity of instances, pursued the same method with the same success; and am hence led to believe when small opacities upon the cornea are curable, nature, thus assisted, will herself accomplish the business. The propriety of wearing pasteboard lined with green silk, to prevent light offending inflamed eyes, is sufficiently obvious, and we now turn
our

Case.

our thoughts to the use of internal medicines in this complaint.

The internal treatment.

Opium.

If the pain in this disease is so great as to require opium, it may without hesitation be occasionally given along with saline medicines ; but the inflammation not unfrequently brings on general irritability, and subjects the patient, in the manner already mentioned *, to a kind of intermitting fever, which after due evacuation,

Bark.

are both cured by the bark, either alone, or joined with neutral salts, &c. as circumstances require. I have several times seen a glossy kind of inflammation, in which the sclerotica is only streaked with blood, cured by the bark : and this remedy proves the best assistant where natural debility and tenderness in the eyes prevails ; especially when joined with light chalybeate waters, a mild restorative diet, cool air, and moderate exercise, un-

Steel.

* Chap. I.

less there is unusual heat; for then instead of steel, nitre should be joined. Rosemary, sage, wild valerian root, &c. have been said to be the best inward medicines in inflamed eyes; but surely not while any considerable degree of inflammation exists, as they have a heating property! I know the simple powder of valerian, not altered by combination, is a most powerful medicine where the sight is weak from nervous affection, unattended with inflammation. I have repeatedly seen it do more in this instance than I ever saw medicines in general do in other disorders; half a drachm being mixed in common water and taken immediately, repeating it three times a day for a month or six weeks together. Perhaps its strengthening the sight after inflammation, where debility had taken place, might introduce this class of medicines into that part of practice in which they ought not to interfere.

Nitre,
when to
be joined
with the
bark.

Nervous
medicines

Valerian.

Mercury,

On the other hand deobstruents are sometimes, as we have just observed, necessary; and mercury has been given with good success in this instance: nor are its effects entirely to be ascribed to removing obstruction in the *vasa minima*, as it corrects more kinds of acrimony than one. Some have recommended Æthiops mineral in this inflammation, when it proves obstinate. Mr. Gooch* has given some cases where corrosive sublimate did eminent service; and I myself have seen similar good effects from that remedy: but I prefer very small doses of pure quicksilver to all the boasted chemical preparations of this mineral; and am convinced it will do every thing that mercury can do, without the least inconvenience to the patient, where it is proper to be given. Whereas by a union of

* Surgery, p. 44, & seq. second edit.

different

different salts and the action of the fire, it is armed with irritating *spiculæ* without adding to its mercurial powers. A single grain of quicksilver extinguished in starch, repeated in the manner we give the solution of sublimate, will have powerful effects without torturing the patient; but it is frequently necessary to defend the bowels, or render them insensible to irritation, by joining with the other, *spermaceti*, *laudanum*, or both.

It is happy for the patient that the *spiculæ* added to it by chymists, are dissolved in the *primæ viæ*; I believe all the preparations of mercury, are decomposed in this passage*; and I am of opinion, that giving small doses, adds to its efficacy, because a grain of quicksilver taken twice a day, very often affects the teeth, if not prevented, in a very short time†.

* See Treatise on Child-bed Fevers, p. 114.

† I have repeatedly seen twenty grains of quicksilver affect the teeth; would a scruple, taken at once, produce the same effect?

Whereas a large quantity passes itself off sometimes without any remarkable effect. Mr. Orme, the famous barometer-maker, formerly of this place, put at least three pounds of quicksilver into a porringer for use; the servant girl, by mistake, hastily poured upon it milk pottage for a lad's breakfast, all which he eat up, without knowing any thing of the matter. The accident however was immediately discovered, and Torricellus began to think of recovering his property. He kept the boy at home, and provided conveniencies for collecting his evacuations, in which he expected the quicksilver to appear. But in this he was mistaken, for a blueish smut only, which seemed to come from every part of his body, appeared upon the sheets; and he never experienced any sensations from this enormous dose of mercury! Whether the suggestions I have advanced, regarding the taking small and large quantities of it, be true or false, of this

this I am certain, that I have seen it produce the most desirable effects in inflammations of the eyes, where obstruction, or acrimony which had no tendency to dissolve the blood, required its use.

When to
be given.

The venereal ophthalmia, is frequently obstinate. I have seen the cornea oftener become opaque in this than in other inflammations of the eye; the topics before recommended, are however here proper; and for the lues itself, mercury is the cure. But there are none more troublesome than that which arises in scrophulous habits; for permanent relief can only be given by removing the cause of the disease*. But of this we can more fully and properly speak, when we treat of what has occurred to us about the nature and cure of this complaint. It is sufficient here to observe, that the intentions of cure seem to be, first, in rendering, if possible, the whole state of the vessels

Venereal
Ophthalmia.

Scrophulous
Ophthalmia.

* See Scrophula.

pervious,

pervious, and making a sufficient derivation from the affected part; both which may be attempted at the same time: in correcting the impediments to digestion in the alimentary canal, and, when the vessels are unloaded, properly to strengthen the system.

When the parotids are inflamed, dissection is evidently the proper method of cure; but of this we shall hereafter speak, in treating of inflamed glands. Wherefore this concludes our general account of those inflammations, which, from their nature and situation, should always if possible, be cured by discussion: and it being a proper place for making the first division in this work, those which require a different treatment, will be considered in the next Volume.

END OF THE FIRST VOLUME.

